KUṢĀṆA STUDIES

Papers presented to the International Conference on the Archaeology, History and Arts of the people of Central Asia in the Kuṣāṇa period

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PREFACE

The three studies included in this volume are intended to elucidate some important aspects of Kuṣāṇa history and archaeology in India.

In the first two essays, the new data from the excavations at Kauśāmbī have been mainly utilised along with confirmatory evidences from the other areas of the Gaṅgā valley. Though the third paper is primarily based on literary sources, archaeological materials from excavations have also been made use of in it for delineating the changing socio-economic order under the Kuṣāṇas.

In the preparation and publication of this volume, help was received from a number of colleagues which is gratefully acknowledged. Dr. S. N. Roy and Dr. Om Prakash of the Department of Ancient History, Culture and Archaeology of the Allahabad University have been closely associated with the work.

I am thankful to Shri Dhaneshwar Mandal for the pains he has taken with the collection and analysis of the data on the arches and domes of the Palace at Kauśāmbī. Shri B. P. Misra, Lecturer in Architecture, Motilal Nehru Engineering College of the University of Allahabad, gave me the full benefit of his expert technical knowledge in the examination of the various aspects of the Palace architecture.

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I

KUṢĀṆA ARCHITECTURE WITH SPECIAL REFERENCE TO KAUŚĀMBĪ (INDIA)

The ruins of the well-known site of Kauśāmbī (81°23′ N. Lat., 25°20′ E. Long.) are situated on the left bank of the river Yamuna at a distance of 51.2 kms. from Allahabad in a south-westerly direction. The remains of the ancient city viewed from a distance give the impression of an imposing hillock, which, when approached nearer, reveals itself as a chain of rolling mounds, standing high above the surrounding plains, girdled on the south by the Yamuna. The background of the entire scene to the south is provided by the Vindhyan range peeping through the horizon at not a great distance beyond the river.

The entire chain has a peripheral circuit of about 6.45 kms. The rampart proper has an average height of 9 to 10 metres from the surrounding field-level. The towers or the bastions, however, are considerably higher, those in the north-western and north-eastern corners being as high as 21.33 metres.

The fortress forms an irregular oblong on the plan. The city was provided with gates on three sides-east, north and west. The location of the southern gate cannot be determined on account of the erosion caused by the Yamuna. Besides the bastions, gates and sub-gates, the city was encircled on three sides by a moat, which, though filled up at places, is still discrenible on the northern side. At some points, however, there is evidence of more than one moat.

The defences at Kauśāmbī betray an advanced knowledge of

fortification. At places the gates are provided with curtain-walls on the outside, the same being best illustrated near the eastern gate.

The entire city, thus encircled by the rampart wall and moat, is littered with a huge mass of brickbats indicating the density of structures in the city. With the passage of time, the habitation-levels inside the city went on rising. The excavations conducted near the eastern gateway revealed that the earliest structures were situated at a depth of 16.45 metres from the existing levels, across the rampart, in the city, which has been considerably denuded since its abandonment. The total habitation deposit intervening between the first and the last period must have been more than 16.45 metres and it is the vertical record of the city's life.

The ancient city of Kauśāmbī came into existence in the wake of the emergence of urban life during the later half of the second millennium B.C., which represented a veritable revolution achieved in the Gaṅgā valley by a people who lived in close proximity of the Harappans, from whom they borrowed not only the concept of town and citadel but also the various elements of architecture. Thus the urban revolution in the central Gaṅgā valley with its roots in the Indus Civilization appears to have been brought about by a branch of the Indo-Aryans marking the beginning of the Iron Age in these regions, antedating the N.B.P. and the P.G. Wares. The urban culture, along with the introduction of coinage for which we find the earliest archaeological evidence in this region in the 9th century B.C., was bound to exercise a great influence on the pattern of socio-economic life during the succeeding centuries.

Kauśāmbī is mentioned in early literature as the capital of the Vatsas. The Śatapatha Brāhmaṇa mentions one Proti Kausurabindi as a pupil of Uddālaka Āruṇi, the contemporary of Janaka, as 'Kauśāmbeya', which, according to the commentator Harisvāmin, means a native of Kauśāmbī. Kauśāmbī figures prominently in the movement and expansion of the Aryans in the Madhyadeśa and beyond. In the Buddhist and Jain texts and also in the Rāmāyaṇa and the Mahābhārata we get contradictory traditions of the foundation of this city. But the general tradition contained in the Rāmāyaṇa and the

Mahābhārata averring that it was established by prince Kuśāmba is corroborated by the Kāsikā which, while illustrating a grammatical rule of the Aṣṭādhyāyī of Pāṇini, mentions that it was founded by Kuśāmba.

According to the Purāṇas Nicakṣu, a descennant of the Pāṇḍavas, transferred his capital from Hastināpura to Kauśāmbī. The Buddhist tradition throws ample light on the importance of Kauśāmbī and the celebrated Ghoṣitārāma monastery situated therein. The Mahāparinibāna Sutta refers to Kauśāmbi as one of the six principal cities of the time of Buddha in northern India, the others being Campā, Rajagriha, Śrāvastī, Sāketa and Vārāṇasī.

Later tradition, both Buddhist and Brahmanical, also contains accounts of the Vatsas and the last Paurava king, the famous Udayana. Rarely has a royal tradition dominated literature for so many centuries as the story of Udayana. His life and romances have provided material for a number of Pali and Sanskrit texts. According to the combined literary evidences the two central themes in Buddhistic tradition relating to Kauśāmbī were: (i) King Udayana, and (ii) Buddha and his religion.

A celebrated centre of Buddhism. Kauśāmbī figures prominently in the accounts of Fa-hien and Yuan Çhawng. The former relates that it was situated 13 yojanas to the south-west of Sarnath. In the latter's narration, we get a detailed account of the place. After visiting the city of Prayāga, the pilgrim proceeded to Kauśāmbī through a forest infested with wild elephants and other fierce animals. He had to cover a distance of 500 li (100 miles), before reaching the 'Kai-Shang-mi' (Kauśāmbī) country. The Buddhist pilgrim states that the country was 600 li in circuit, the capital city being 30 li. He makes specific reference to the fertility of the area with its hot climate and with rice and sugar-cane as its principal produces. He also testifies to the enterprising nature, aesthetic sense and religious leanings of its inhabitants.

The remains of Kosam were for the first time identified as those of the once famous Kauśāmbī by General Cunningham in the year

1861. Sri N. G. Majumdar of the Archaeological Survey of India was entrusted with the work of the excavation of the city in 1937 which he did for two consecutive seasons. However, due to the sad demise of Sri Majumdar in 1938, the work was abandoned, to be started afresh in 1949 by the Allahabad University. Since then the University has been carrying on excavation in different sectors of the old town uninterruptedly.

The main areas excavated[1] so far are:

(1) Ancient roads, lanes and residential houses of the common people near the Aśokan pillar situated practically in the centre of the mound enclosed by the defences.

(2) Ghoṣitārāma Monastery, the celebrated abode of Gautama Buddha, near the eastern gate of the ancient city. The monastery is frequently mentioned in the early Buddhist literature and is said to have been built by one of the leading bankers of Kauśāmbī named Ghoṣita. In tradition he is referred to as the treasurer of king Udayana and also related to the latter through his foster daughter. During the course of his stay at Śrāvastī, Buddha was invited by Ghoṣita and two of his other banker friends named Kukkuṭa and Pāvariya to pay a visit to Kauśāmbī. In order to provide a lodging for Buddha and his followers, Ghoṣita built a monastery which was christened as Ghoṣitārāma after his name. Lord Buddha is said to have graced the monastery by his visits and stay on many an occasion, and the Tripiṭaka abounds in stories concerning it. Some of the famous Suttas and Jātakas, e.g. Kosaṁbiya, Jaliya, Sandaka, Upakkilasa, Sekha-Suttas and Dalhadhamma, Kosambi and Surapana Jātakas were preached by Buddha while he was staying at Ghoṣitārāma.

Ghoṣitārāma monastery occupies an important place in the history of the Buddhist church. It was in this monastery that schism threatened the Buddhist order for the first time in the very presence of the Master. According to the Chīvara Khandaka of the Mahāvagga, the Buddha was so disgusted with the internecine quarrels of the monks of this monastery that he left Kauśāmbī for Śrāvastī.

The Cullavagga (Khandhaka 12) records that the Bhikṣu Yasakakandaputta after quarrelling with the monks of Vaiśālī came to Kauśāmbī and convened an assembly of the monks from Pāvā and also from the whole of the south. It was here that Buddha was informed about the conspiracy of Devadatta. Ānanda and some other distinguished disciples like Piṇḍola Bhāradvāja, Sāriputta, Anurudha, Musila, Nārada etc. also stayed at this monastery, some of them even after the Parinibbāna of the Master.

According to the Mahāvaṁsa, a delegation of 30,000 monks from the monastery under the leadership of Urudhammarakkhita was present at the time of the foundation of the Mahāthūpa of Anurādhapura in Siṁhala.

The Chinese pilgrims Fa-Hien and Yuan Chwang also visited the monastery. The former found it in a decadent state being inhabited by a few Hīnayāna monks, while the latter saw it in ruins.

(3) The defences of Kauśāmbī: Near the eastern gateway of Kauśāmbī has been laid bare the complex defence system with a number of revetments, bastions and guard-rooms built and rebuilt over a vast span of time. The results of the excavation in this sector have been published by the University in 1960.

(4) The Śyenaciti of the Puruṣamedha: Immediately outside the defences on its eastern side have been unearthed the ruins of a sacrificial altar which has been identified as a Śyenaciti on which the famous sacrifice known as Puruṣamedha was performed in second century B.C. The identification has been made on the basis of the nature of its construction, the materials excavated, and the literary data.

Needless to say, the excavations conducted in these sectors have thrown welcome light on the various aspects of ancient Indian history and culture. Our knowledge regarding the evolution of town life, the growth of urban concepts, sculpture, architecture epigraphy and the antiquity of coinage has been considerably enlarged. However on the basis of the ceramic industries of the entire sub-periods noticed

so far, the total culture sequence can be divided in five distinct groups, each presenting a special feature characteristic of its own:

KSB Pd. I—(C. 1300 B.C. – 1000 B.C.)—Pottery from the lowest levels, particularly from the defences is very fragmentary and extremely worn out. The major ceramic industry of this period is predominantly red, occasionally painted in black pigment. In addition to this, there is small percentage of sturdy grey to buff ware, coarse Black-and-Red Ware and coarse black ware. Some sherds with incised designs have also been obtained.

Excepting a few stray examples, the pottery of this period is wheel turned, treated with a wash or slip.

KSB II—(C. 1000 B.C. – C. 900 B.C.)—The pottery from the later layers of the defences at Kauśāmbī and almost the entire earlier material from the Palace area according to our latest analysis, especially in the light of the material of other sites, constitutes a distinct group. There are at least 9 types present in this group at Kauśāmbī which compare well with the similar types of Atranjikhera I. The decorative motifs on the painted and incised sherds mostly from the Palace area, are comparable with similar ones on the pottery of Rangpur IIB, IIC and III, Lothal B, Navḍatoli III and Bahal I. They constitute a distinct group from KSB I and KSB III. Like that of the earlier period the pottery assemblage of this period comprises red ware and Black-and-Red ware.

Many of the types of Pds. I and II are widely distributed in western and central India as well as in Gaṅgā valley, generally in a Chalcolithic context, the sites in question being Rangpur (IIB, C—III. Lothal (B) Prabhasa, Rojdi (IA—IC) Mehagaon (Pd I) Bhogatrava (Pd I) Amra, Sawalda, and Ahar IC in western India, Eran I and Navdatoli III in Central India and Alamgirpur (Pd I) Bahadarabad, Atranjikhera I and II Kakoria, Sonepur (Pd I) and Chirand I in the Gaṅgā valley. It is interesting to note that in western India the comparable types occur in the Late Harappan or immediate post-Harappan context. In the Gaṇgā valley, the most noteworthy sites yielding some of the analogous types are Atranjikhera (Etah District

U.P.) and Kakoria on the Chandraprabhā (Varanasi district), the number of comparable types at the former site being 15, at the latter 73.

Chirand in Bihar has also offered 9 analogous types. In this context it is interesting to note that a recent radio-carbon determination from Chirand I has yielded a date going back to 1600 B.C.

As in the case of pottery types so in the case of painting and incised patterns, some of the painted pieces resemble very much their counterparts from Navdatoli III, Eran I, Rangpur IIA—III, and Alamgirpur I. The incised designs at Kauśāmbī are also represented either in incision or in painting at the sites like Lothal B, Prabhasa IB, RGP IIB—III, Bara (IB) Alamgirpur I, Rojdi (I), Gilund I etc. everywhere in Chalcolithic context.

Thus the early pottery of Kauśāmbī of Pds. I and II shares in common many types as well as painted and incised designs with some of the Late Harappan and Post-Harappan sites of Western India, Central India and Gaṅgā valley. This points to its early antiquity and origin. A link with the Chalcolithic culture complex and with Harappan traditions seem to be ultimately indicated.

KSB Pd. III.—This period is characterised by the occurrence of the typical Painted Grey Ware along with Black-slipped Ware, Black-and-Red ware, plain grey ware and red ware. A comparison of the pottery assemblage of Kauśāmbī III with other sites of Gaṅgā valley especially Atranjikhera III has brought into focus the following points:

(I) The Black-and-Red ware, Black-slipped Ware and the red ware associated with the Painted Grey Ware of this period have a wide diffusion and they show much similarity at Atranjikhera III, Kakoria, Chirand IA—IB. Sonepur IA—IB etc. at least in typology.

(II) Though at the sites of Atranjikhera, Hastinapur, and Rupar etc. the painted Grey Ware is a rich industry, at the site of Kauśāmbī it appears to be an effete one.

(III) It appears that the Painted Grey Ware represents a superimposition on a non-Painted Grey Ware pottery assemblage in the Gaṅgā valley.

KSB Period IV—(600 B.C.—1st B.C.)—The pottery assemblage of this period includes the famous Northern Black Polished Ware, Black-and-Red Ware, Black-slipped Ware and the red ware. The Northern-Black Polished Ware in this assemblage seems to be the delux ware of the time. The sherds of this ware in various shades e.g. steel grey, lustrous blue, orange, tan, chocolate, brown, drab, pink, buff, cream, silvery and golden have been obtained.

The continued occurrence of the P.G. Ware in the earliest levels of the N.B.P. Ware and the occasional similarity in the painting motifs of the two show an unmistakable influence of the painting tradition of the former on the latter. It is, however, to be noted that the earliest evidence of lustrous polish is not furnished by the bowls and dishes which this ware shares with the P.G. Ware but by the vases and stem of stands of red ware.

The ware is represented by bowls, dishes, basins with collared rim, basins with spout, lids, carinated handis, globular vessels. small, miniature and medium sized vases and spouted vase.

A few sherds of red ware, Black-and-Red Ware and N.B.P. Ware, have been found with incised, impressed or applique, designs consisting of rows of punctured dots, strokes, triangles, circles, chevrons, criss-cross, wavy lines, horizontal, vertical and oblique bands, latticed designs and semi-circles.

The excavations in the different sectors at the site have also brought to light a number of sherds with graffiti marks, on all the principal wares of this period. The symbols consist of signs of cross, plus, multiplication, trident, bow and arrow, taurine, parallel vertical lines, triangles, circles, squares and a few early Brāhmī signs.

KSB—Period V—It is marked by the complete absence of the N.B.P. Ware, the principal wares of the period being red and black wares.

The study of pottery from Kauśāmbī periods IV and V has furnished very interesting data throwing light on the connection between India and Soviet Central Asian Republics. Among the common shapes scattered over a wider area from India to Khorezm mention may be made of conical cylinder bowls of different sizes, pedestalled goblets, handled incense burners and lipped Surahis, etc. (for detailed discussion, see the paper Śaka-Kuṣāṇa in the Central Gaṅgā Valley in this volume).

C-14 dates from Kauśāmbī :

The chronology of the archaeological sequence described above has been partially corroborated by C-14 determinations, kindly supplied to us by the Tata Institute of Fundamental Research, Bombay. Of a number of samples examined by them mention may specifically be made of sample T. F. 221,[2] T. F. 219,[3] T. F. 96[4] and T. F. 95.[5] All these samples have been selected from the stratified deposits in a very limited area where the super-imposition of the road-levels provides extremely reliable evidence regarding their relatived relationship. The earliest, T. F. 221, is from a layer from the middle of the lower levels of the N.B.P. Ware. The C-14 determination 500 ± 105 B.C. thus fully confirms the archaeological deduction regarding the beginning of the N.B.P. Ware in C. 600 B.C. In fact, indications are in favour of a higher antiquity. T.F. 219, is from the 1st road and its radio-carbon determination 440± 100 B.C. is significant. C-14 determination of T.F. 96 from Pd. IV is 115±100 B.C. Archaeologically this level represents immediate Pre-Kuṣāṇa period. Road V is associated with the beginnings and the early part of the Kuṣāṇa rule and the C-14 determination of the sample T.F. 95 is A.D. 50±120.

A number of samples from other excavated areas from Kauśāmbī were also examined and they offer consistent chronological evidence and confirm the archaeological sequence. The extensive destructions carried out by the Hūṇas in Ghoṣitārāma have yielded seals counter-struck with the seal of Toramāṇa and also those of Hūṇarāja, besides a large number of Hūṇa arrow-heads. The C-14 determination for this level is 435± 95 A.D.[6] Thus we have now a number of radio-

carbon determinations ranging in dates from about 600 B.C. to 600 A.D.

The Palace area :

In the south-western corner of the Ancient walled city of Kauśāmbī an area on the Yamuna was clearly marked out from the rest of the site by its well-defined contours. The entire area was littered with chips of stone, fragments of plaster and the sherds of the N.B.P. and the associated wares. On the Yamuna two small prominent mounds covering an over all area of almost 75×45 metres were included within this complex. To these walls was connected a strongly built tower (Pl. IV) with a diameter of 11 and 12.5 metres respectively at the top and bottom, still standing in utter defiance of the formidable currents of the Yamuna especially in the rainy season.

The examination of the surface indicated the possibility of the existence of extensive stone buildings of considerable antiquity.

The excavations conducted by the University since 1960 have laid bare a massive stone fortress (Fig. 1) on the Yamuna measuring 320×150 metres. On plan, it is barrel shaped. The northern and southern sides are parallel and the eastern and western curvilinear. There are three towers, circular in plan, fully exposed, at the north-eastern (Pl. VI and VII), north-western and south-eastern ends. The corresponding tower on the south-western side and also a considerable part of the Palace complex has been washed away by the river. The rectangular tower (Pl. V) (15.24×12.34 metre) is a later addition to the northern boundary wall. The Palace complex shows some addition to and modification of original plan which would be noticed at their proper places.

The northern side (Pl. V) which is fully intact is approximately 132 metres in length and its width being 5.8 metres. The circumference of the towers (Pl. VI) at its North-eastern and North-western ends is 7.92 metres. The southern wall, on account of subsequent super-structures which is parallel to the northern, is exposed in a very

limited area. The tower at the south-eastern corner has a diametre of 10.66 metres. The difference in the radii in the three existing towers may be due to the later extension of the tower at the south-eastern end. It has not been possible so far to demarcate clearly the original outline of this from the subsequent enlargement as has been done in the case of the North-eastern and North-western towers. The eastern and western walls have been only partially exposed.

The stone fortress was surrounded by a dry ditch (4.57 metres in depth and 4.57 metres in width) of which the evidence is exposed in a limited area, to the north of the northern boundary wall. Like the Palace complex, the ditch also shows a number of periods and the materials recovered from it provide valuable evidence, contemporary with the corresponding periods of the Palace.

The excavation of the two mounds on the Yamuna has laid bare a very extensive but a later complex of residential buildings of Ist—2nd Century A.D. (Fig. 2).

The excavation shows four main stages in the architectural evolution of the Palace with ten sub-periods. The earliest stage is represented by undressed stone boundary wall which has been exposed beneath the dressed wall of the second stage on the northern and the western sides. The wall was built entirely of random rubble, huge stones being laid in lime mortar. The stones were not dressed but the outer surfaces of the wall might have been plastered, though there is no conclusive evidence. The layers contemporary with this wall have a thickness of 1.52 metre and are pre-N.B.P.

The dressed boundary wall of the second stage represents the apogee of the architectural achievement. Neatly dressed stone measuring about 66×53×20 c.m. were used for the facing of the walls. The core, however, remains of rubble. This wall remained in existence for a very long time and two sub-periods of constructions are denoted (1) by change of alignment, and (2) by the addition of the rectangular tower and change in the position of the return wall in the eastern side, and (3) by the use of flush-pointing in the period. The flush-pointing shows a certain amount of deterioration in the standard

of construction, but on the whole a high standard has been maintained in the use of highly dressed stone to provide the facing of the wall.

The return wall constituting the western side of the Palace was actually built on the western side of the rampart which incidentally shows that the stone fortress is posterior to the main defences of the township.

The Palace was destroyed sometime in the 2nd century B.C. when the stone boundary walls and towers were razed to the ground. There is also evidence of conflagration. The debris layers which covered the ruins of wall yielded sherds of the Northern Black Polished Ware, besides a sealing bearing an inscription in the Brāhmī script of c. 2nd century B.C. The layer has also yielded double-tanged arrow-heads ascribed to the Indo-Greek invasion of Kauśāmbī.

The third stage of the Palace was rebuilt immediately after the destruction but there is a noticeable change in the alignment and in the method of construction. The boundary wall was no longer built of stone alone, the core being made of stone and the bricks being used for the facing. The corner towers were enlarged and the largest cross-section across the North-eastern tower measures 19 metres.

The fourth stage is represented by extensive construction, especially on the Yamuna. The nature of the construction gives it distinct individuality. Contrary to the general norm of construction at Kauśāmbī, as revealed by the brick structures of the preceding periods of this area and also in the Ghoṣitārāma and other areas so far excavated, it is a typical example of hybrid architecture in which the bricks and stones were used in an indiscriminate manner. Only brick-bats were used in the very massive construction of this period and new and complete bricks are almost conspicuous by their absence. The stone blocks were also undressed and no attention was paid either to shape or size (Pls. IX–XI). The builders sought to overcome the weakness of the walls and the towers consequent upon the use of the poor quality of building materials by taking recourse to thick plaster. Almost every inch of the construction was covered by a thick layer of plaster and sometime more than one coat was applied. The Palace in

this phase shows certain new features so far unknown to the architecture of the Gaṅgā valley.

There is however no break in the occupation. The walls of this period were considerably widened but they were built on the foundation of the third architectural phase. There was no appreciable change in the general alignment.

The analysis of the mortar material and plaster of different architectural phases of the Palace by Dr. B.B. Lal (see Appendix I) demonstrates continuity in the technique of the preparation of the joining material, as well as in the plasters from the phase of the undressed stone wall to the last phase of the Palace complex represented by the Kuṣāṅa Palace. The composition of the mortar and the plaster and their constituent elements do not show variation of any fundamental nature.

The plan of the fortress was considerably modified by the addition of two circular towers (Fig. 1). One of which (Pl. IV) still survives on the Yamuna. This new addition formed an apex of the triangle with the southern side of the original barrel shaped plan as base and the each of the two new additional sides measuring approx. 34.8 metres.

The Chronology of the four architectural phases :

According to the evidence of stratigraphy, pottery and other finds, the chronology of the four main phases in the construction of the Palace is as follows :—

(I) The undressed stone wall C. 8th Century B.C.—6th century B.C.

(II) The dressed stone wall (C. 6th century B.C.—2nd century B.C.).

(III) The Third phase (C. 2nd century B.C.—1st century A.D.)

(IV) The last stage—Kuṣāṇa palace (C. 1st Century A.D.—2nd century A.D.)

The Kuṣāṇa Palace

The ruins of an extensive Palace on the Yamuna concealed by the two mounds mentioned above, represent the last occupation of the Palace area. As has been noted earlier, the architecture of the period denotes a clear departure in the architectural tradition and introduces technique, forms and concepts completely unknown previously.

The Palace is divided into three blocks—eastern, western and central connected by the galleries. The eastern block (Pl. XI) and central block measure 22.86×12.49 metres and 24.99×12.86 metres respectively. A considerable portion of the western block has been washed away by the Yamuna.

The central block consists of two sets of three rooms measuring respectively 4.47×3.91 metres, 7.51×3.91 metres, and 5.40×3.91 metres. As is evident from the debris, the set of three rooms designated as ER1, ER2, and ER3 in the later section of this paper, on the southern side facing Yamuna had domical (Śikhara-like) surmounting structure. Room ER3 and the corresponding room on the eastern side of the block had basement supported by semi-elliptical vault. The basement of the Northern Room of this set is considerably preserved and has been illustrated in Figs 3, 1; Figs. 2, 9 and Figs. 4, 1. This room had a diameter of 5.40×3.25 metres. The height of the vault was 2.08 metres. The passage of this room into the gallery had a segmental arch which is only partially preserved. The centre of the major axis of the arch was considerably flattened to provide a levelled living floor.

The semi-elliptical barrel vault (Fig. 2, 11) over the basement of Room No. ER3 is badly disturbed, but the evidence is sufficient for the reconstruction of its shape. The passage of basement in the gallery had a segmental arch (Pl. XIII-B, Fig. 2, 6, Fig. 3, 3 and Fig. 4, 3) which is very well preserved. A room attached to this complex in the eastern block has preserved evidence of collapsed barrel vault (P. XI).

The central block (Pl. IX) consist of a rectangular room in the middle measuring 11.44×4.08 metres and a set of two rooms on two

sides, each measuring 4.08×2.81 metres. There is evidence of a verandah attached to the front of the central rectangular room. There are seventeen passages that connect all the rooms and the verandah, and also the set of two rooms on both the sides with two galleries, eastern and western. The passages were provided with door-jams of stone. The door-sill is usually a monolithic stone with sockets at its two ends for door-jams.

The debris of the collapsed domical roof (Śikhara) has been exposed in the central rectangular room. It is clear that the brick courses alternated with stone courses not only in the construction of the wall, but also in that of the surmounting structures.

Attached to the southern wall and to its south, there was a basement (Pl X) 2.13 metres in width. A passage in the western gallery connects this basements with the central block. The basement had a semi-elliptical barrel-vault with a height of 2.08 metres, and the three passages had four-centred pointed arches (Fig. 2, 3, 4, 5) of which that over the opening of basement (Fig. 2, 3) is fully preserved.

Western Block : There is evidence for basement in the two rooms on its eastern side which alone are now partially preserved. The basement of the southern of these rooms had three passages (Fig. 2, 1, 2 and 7 and Pl. XII) which had arches of different types, one of them (Fig. 2, 1; Fig. 3, 1; Fig. 4, 1 and Pl. XIII-A) being fully preserved. The geometry of its construction has been discussed in a subsequent section. The second arch in this room (Fig. 2, 2) is again an example of four-centred pointed arch. The third (Fig. 2, 7), on the other hand, belongs to the type of segmental arch. It is interesting to observe that passages under the same vault had two types of arches, the shapes of which were evidently conditioned by the span of the passage, the height being nearly the same. The evidence of vault over this room has been completely destroyed.

The evidence of semi-elliptical barrel vault has, however, been very well preserved by a ghost arch (Pl. XIV). The foundations of the walls alone are preserved. The entire abutment was robbed, but as the vault was packed with debris before the robbing, the subsequent

robbing of the bricks from the abutment and the destruction of the floor has left undisturbed its inner profile. This vault in its shape is almost identical with the one described in connection with the eastern block (Fig. 2, 9; Fig. 4, 1). The centres of the arch, e.g. the minor arcs are below the springing level in both the cases, and curiously enough their radii measure 0.52 metre.

Galleries : The two galleries, eastern and western (Fig. 2, 13, 14) measuring approximately 7.74 metres and 7.36 metres respectively connect the three blocks–eastern, central and western. The vault has collapsed, and the evidence is considerably disturbed. However, the pieces of the collapsed vault are well preserved in the eastern gallery (Pl. XV). The roof of the basement in the gallery was supported by a semi-elliptical barrel vault. All the basements in the room and in the gallery had a uniform level on which the rooms of the ground-floor were reconstructed. Both the galleries had passages towards the Yamuna. In case of the eastern gallery the door-sill along with the passage is well preserved.

Height of the Passages in the Basement:

Attention may especially be invited to a very peculiar feature of construction. In no case the height of the passage in the basement was more than 1.42 metres, the minimum height being 1.04 metres only.

GENERAL FEATURES OF THE NEW ARCHITECTURAL DEVICE

The first important feature is the extensive use of elastically curved surfaces like roofing and bridging devices over rooms and door openings respectively. The roofing device consists of the Śikhara-like domes and semi-elliptical barrel vaults, whereas the bridging device consists of segmental and four-centred pointed arches. These devices were used on extensive scale and indiscriminately in basement and ground floors as well. This system of construction in technical terminology is referred to as 'arcuation'.

The total impression this construction gives is of its having been done in haste which is evident by the intermixing of brick and stone material together with irregular sizes of pieces of short length small-dimensioned masonry blocks and general deviations from the arcuated profile of geometry. Most of these deficiencies have, however, been sought to be compensated by thick mortar joints and heavy coatings of plaster for bonding and geometrical contour perfection respectively.

The constructional differences between the roofing and bridging devices of the arcuation system seem to represent a period of transition when the masons knew the radial device of arches as one-plane curvature, but did not have the hold upon the radial device necessary for domical construction, i.e. provision of two-way necessary for domical construction i.e. provision of two-way curvature along horizontal and vertical planes. This led to the use of the corbelling device i.e. off-setting in the horizontal plane of consecutive courses of bricks in the domical construction. The most striking feature of these domical roofing structures is that rectangular rooms have been roofed by a dome elliptical in plan. The elements of perfection in the radial arches were the provision of skewbacks of the harder bed i.e. stone, and key-stone of some kind. Attempt was also made to form a general symetry of geometrical profile of arches along their vertical axis by establishing certain radii of curvatures resulting in segmental and four-centered pointed arches. However, due to the irregular sizes of stone and brick voussoir a continuous elastic curve of arch-ring consisting of regular extrados and intrados is missing. This also produced inaccuracy of the geomtrieal profile of arches. The irregular size of voussoir has further caused the blurring of the centres of curvatures. The placing of voussior on end or on edge suggests technical improvement.

The common use of plaster on the surfaces of arches has brought about the outward accuracy of geometrical profile of curved surfaces. This device could not, however, improve the structural deficiencies of the general arcuation system which could not but remain weak and less durable.

A temporary system of support below these curved surfaces seems to have been taken recourse to; its marks can still be seen on the fragments of the dome. It seems that the roofing surfaces were tem-

porarily supported during their construction and setting period in order to maintain their desired profile of curve by a shuttering frame consisting of cross planking. However, in case of arches such evidence is not available, although it is assumed that some system of temporary support like centring might have been used.

Classification:

(i) Morphological.

(ii) Functional.

On the basis of morphology and the geometry, the arcuation has been classified into the following categories :—

(i) The four-centred pointed Arch;

(ii) The segmental Arch;

(iii) The semi-elliptical barrel Vault; and

(iv) The dome with foliated profile

  (a) circular in plan

  (b) elliptical in plan

The classification is primarily based on intact specimens. Disturbed or fragmentary specimens have, however, been studied for confirmatory evidences.

Fourt-centred Pointed Arch : (Fig. No. 2, 1 to 5)

The arches of this type have four centres, two on either side of the axis of symmetry. The vertex formed at the juntion of two central arcs from either side develops a conical profile producing a pointed crown. Of the five arches of this type so far excavated, four are mostly intact.

Segmental Arch : (Fig. No. 2. 6 to 8). All the extant specimens of segmental arches represent the shorter segment of a circle. Consequently the centre of curvature falls below the springing level. Of the three specimens, only one is intact.

Semi-elliptical Barrel Vault : (Fig. 2, 9 to 16). This type of

arch was invariably used for roofing the basements. Eight specimens can be wholly or partly reconstructed. The elliptical profile is a product of three centres of curvatures, the two minor radii being on either side of axis of symmetry, and the third and major one coinciding with the vertical axis itself. Consequently the two arcs at the two ends are smaller than the central major arc. In the extant specimen, the curvanture of the central arc has been reduced almost to a flat surface to enable it to serve as a level floor.

Dome with foliated Profile : The discovery of fragments in the rooms of the eastern and central blocks with curved surfaces, arc-like plan on horizontal plane; concentric pattern of brick courses rising upwards to produce curved surface also on vertical plane, pointed to the existence of domical surmounting structure. Since some of the fragments showed clear evidence of change of curvature along their vertical section plane, it has been inferred that the fragments formed part of domes with foliated profile. The circular and elliptical domes in plan could also be understood from the horizontal section of the available fragments.

Functional Classification: The arches were used as a bridging device over all openings and their shape depended upon their span. The four-centred pointed arch was used to cover smaller spans, while the segmental was used for larger spans. In the case of four-centered pointed arch, the ratio of height to span was 9 : 8, whereas in the case of segmental arch, the ratio was 57 : 56. The height of the arches in both the cases was not sufficient for minimum headway for a walking person. This was due to the fact that all the extant arches spanned passages to basement-chambers.

The semi-elliptical vault is most in evidence, having been used for providing the roof over the basements and galleries between the three blocks.

Geometry of Arches:

Four-centred pointed Arch : The geometry of the four-centred arch has been illustrated in fig. 4 No. 3. A-B indicates the springing level,

and a, a′ with their centres marked D and F respectively represent the two smaller side arcs. It will be observed that D and F both are located at quarter span along the springing level. The remaining two central arcs C, C′ had their centres H and I at floor level immediately below the centres of radii of smaller arcs D and F along the springing level. It is further noted as a point of geometrical accuracy that the radii of larger central arcs cross each other at a point G. on vertical axis of symmetry at the mid-height between floor and springing levels.

In all the four cases of this type where the arches were more or less intact it was observed that the rise of arch was less than half the span. In arch nos. 1, 2, 3 and 4 (Fig. 2) the rise and span measure .33 m and .86 m, .30 m, and .91 m, .39 m and 1.11 m and .21 m respectively. None shows deviation from this general rule.

The voussoirs show rise in ascending order from springing level to crown, but on account of the use of material of irregular size and thickness there is no uniformity in the angles of rise of two consecutive voussoirs. Again, on account of irregular size and thickness of the voussoirs and the use of stone and brick without discrimination, the voussoirs raditate at different angles, and not at their respective centres of curvature.

The geometrical deficiencies noted above were sought to be overcome by the use of a thick coat of plaster.

The continuity of arch ring formed within the extrados and intrados is missing which impairs the structural efficiency of elastic curve of arches. This is due to the fact that while intrados curvature was maintained, sufficient atention was not paid to the extrados curvature.

In certain examples the skewback was used in its true conecpt and the splayed bed was correctly maintained, but in other cases the arch ring was placed on horizontal bed.

The builders of these arches seem to have been fully conversant

with the importance, function and position of key-stone at the crown. but they have not refrained from using undressed stone of irregular size or even brickbats for the crown.

Segmental Arch: Fig. 4, No. 2 illustrates the geometry of the segmental arch known to the builders of Kauśāmbī. AB is the springing level and F is the single centre of the arc which is the shorter segment of a circle. In a real segmental arch the voussoirs radiate from one centre, but here they do so from different centres, though all these centres meet the centre line, evidently the radiation converging along the plane of symmetry.

The deviation from the correct geometry characterizing the construction of segmental arch, namely, the convergence of all the voussoirs at the central point was due to their irregular sizes.

Of the three arches of this type two alone were sufficiently preserved to yield results relating to the geometry of their construction. In both the cases (fig. 2, Nos. 6, 7) the rise was less than half the span. In Arch No. 6, the rise is 41 cm., and span 1.52 m., and in Arch No. 7 the rise is 43 cm., and span 1.37 m. In the illustrated specimens the arch ring rests on a horizontal bed of stone and there is no evidence of splayed bed of skewbacks. This seems to be the general feature of this type of arch.

Semi-elliptical Barrel Vault : Fig. 4, No. 1 illustrates the best preserved semi-elliptical barrel vault. AB represents the springing level; C & D, both of which are situated below the springing level, are the centres of smaller side arcs measuring .52 m., whereas the central arc is almost flat.

Voussoirs radiate in an ascending order even in the flat surface. They form an angle with the plane of symmetry, though nearly parallel to one an other. The arch rests on splayed bed of skewback formed out of brick courses by offsetting.

Contemporary Arches from Afghanistan and U.S.S.R.

The four arches illustrated in Fig. 5 (1—4) are from Balkh[7] (Afghanistan); Toprak Kala and Janbas Kala (U.S.S.R.[8]). The arch (fig. 5—i) from Balkh (1st century A.D.) is a slightly pointed elliptical arch. Unfortunately, no drawing is available; geometrical comparisons are, therefore, not possible.

The three arches of Toparak Kala and Janbas Kala from Khorezm are dated to 1st—3rd century A.D. They are interesting in the Indian context because of the association of these areas with the Kuṣāṇas.

The geometry of the segmental arch (Fig. 5, 3) from Janbas Kala offers the closest parallel to its Indian prototype from Kauśāmbī. As at Kauśāmbī the single centre of the arch is situated below the springing level. The radiation of the voussoirs meet not at the centre of curvature of the arch, but along the vertical plane of symmetry. The material of which this arch is made is entirely different from that with which the arches are made at Kauśāmbī. The use of wedge-shaped voussoirs of uniform width resulted in the formation of a regular arch ring at the extrados and intrados.

The second arch at Janbas Kala (Fig. 5—4) is also a segmental arch. But its construction is imperfect because of the irregularity of voussoirs. However, the geometrical principles on which this arch was constructed are the same. On account of unsymmetrical placement of voussoirs of the arch on either side of the vertical plane of symmetry, the radiation of corresponding voussoir does not coincide on their respective points on the central line. Some of the voussoirs do not coincide on their respective points on the central line. Some of the voussoirs, on the contrary, radiate away from the vertical plane of symmetry. The crown piece or the key-stone is also unsymmetrically placed.

The arch (Fig. 5—2) from Toparak Kala is peculiar type of elliptical arch in which the arch ring is unsymmetrically placed and the plane of two centres of radii for minor arcs of the ellipse is inclined

from the horizontal plane. However, the similarities of this arch with Kauśāmbī examples are that its radii of curvatures fall below the plane of springing line and that the voussoirs do not radiate from the centres of radii of their respective arcs.

RESTORATION OF DOME (ŚIKHARA)–EASTERN BLOCK

The rooms and the halls of the central and eastern blocks and the two galleries were filled with large, heavy fragments, many of which were removed in the process of clearance of the area. However, the material that was preserved, after its significance was correctly understod, has made possible a critical study and reconstruction of the surmounting structures, which, as will be evident from the discussion, were domical in shape and can aptly be described as Śikharas. These fragments, made of bricks, thick lime mortar and heavy coating of plaster, are considerably large. Close observation indicates horizontal as well as vertical curvature of surfaces. In each fragment the brick courses are so placed that each succeeding course slightly recedes from the preceding one, and thus is formed a sort of offsetting indicating the corbelling technique on both the intrados and the extrados. This characteristic is obvious where the plaster is disturbed.

Study of the Raw Material:

Six of these frayments have been selected for physical and morphological study. The morphological study primarily deals with the geometrical shape of the fragments which have been numbered 1, 2, 3, 4, 5 and 6 in Fig 6.

The dimensions of the fragments are 1.52 m × 0.89 m, 1.95 m × 0.73 m, 1.32 m × 0.66 m, 0.92 m × 0.76 m, 1.22 m × 0.91 m and 0.91 m and 0.91 m × 0.81 m respectively. The brick courses have been set in lime mortar. The mean thickness of brick courses and mortar used in these pieces is 5.33 cms. and 4.82 cms. respectively The combined mean thickness of the above two is 5.08 cms. The brick courses used in fragments nos. 1, 2, 3, 4, 5 and 6 are 9, 6; 6; 6; 9 and

9 respectively. These courses are so placed that each succeeding course recedes from the preceding one and thus provides an orderly offsetting of a mean depth of 3.81 cms.

In order to understand the morphology of the fragments vertical sections at their maximum available height and horizontal sections at maximum available bottoms and tops were cut across. As a result it was found that these fragments had two-way curvatures along vertical and horizontal planes, as is indicated in Fig. 6. It appears from their vertical sections that they had wide bottoms and narrow tops, Their thickness at the bottom and top measures 55.88 and 45.72 cms., 45.72 cms and 30.48 cms, 63.50 cms and 58.42 cms, 53.34 cms and 48.72 cms., 48.26 cms and 48.26 cms, 45.72 cms. and 43.18 cms respectively.

It was observed from the study of their horizontal sections that their radii of curvatures had a tendency of gradual reduction from bottom to top. The radii of these pieces at the bottom and top measure 2.48 m and 2.10 m., 2.13 m. and 1.90 m., 5.04 m. and 5.86 m., 4.87 m. and 4.42 m., 4.47 m. and 4.18 m., 4.16 m. and 3.78 m. respectively Here it may be pointed out that the fragment no. 4 has two radii i.e. minor and major. indicating thereby its being part of an ellipse. The minor radius measures 1.27 m.

The Results of Morphological and Physical observations of the Fragments for the Domes:

The results of the morphological and physical observations made above may be summarised as below:

The evidence of curved profile is the most significant feature of these fragments. The horizontal sections cut at the available bottom and top of the fragments invariably reveal arcuated plan. These were, therefore, either part of a circle or an ellipse. Similarly, the vertical section cut at the available maximum height of the fragments represents mostly convex and occasionally concave profile externally. Thus the evidence of curved surface on the vertical section also indicates the probability of some type of curved roof.

Further, a gradual reduction in the thickness of the vertical section is clearly discernible from the study of these fragments. The implication of this evidence is significant from the viewpoint of structural considerations. It reduces the weight of the material of the roofing surface towards its top transmitted to the supporting abutments.

Both at the extrados and intrados there is clear evidence of orderly, if not uniform, offsetting. The surface is made smooth by thick coating of plaster. This orderly offsetting testifies to the construction of this part of the surmounting structure by corbelling which produced concentric rings on the plan. It may specifically be pointed out here that the radial technique of brick setting is entirely absent.

The radius of curvature is gradually reduced on the horizontal plan from the bottom to the top of the domes. The conclusion emerges, therefore, that the surmounting structure had a wide bottom and narrow top.

In fragment No. 4 (Fig. 6) there is evidence of two radii. This evidence suggests the possibility of an elliptical construction. It is important to note that the fragments enclosed in a smaller room which is more or less square do not furnish evidence of this nature. Such testimony, i.e. arc being governed by two radii, comes from the pieces recovered from the hall which is rectangular in form.

Locational and typological analysis of the fragments:

The prob'em of determining the place occupied by the fragments in the superstructure raises two interconnected questions in the light of which the present problem may be dealt with. The first and the basic question is regarding their locational identification. The second one relates to the nature and type of the superstructure of which these fragments form part.

(A) *Locational Identification*:

Though the fragments in question are scattered within the four

walls of the main hall of the eastern block, the nature of the mortars, the surfaces and the offsetting of the courses prove byond doubt that these were not parts of the wall, but of the surmounting structure of a curved shape. This would be only a roofing device and not a supporting member.

(B) *Typological identifications*:

Since the fragments have two-way curvature i.e. along the horizontal and vertical plane, which is a characteristic feature of a domical surface, it is self-evident that the superstructure of which these were parts was domical in shape. Had the roofing device been a vault the fragments could have only one-way curvature i.e. along the vertical plane. A flat roof is altogether ruled out due to the presence of curvature in these fragments. Besides, absence of groins precludes the possibility of cross vault or polygonal dome also.

These fragments, therefore, may be identified as parts of dome. The curved surfaces in roofing and bridging devices are only applied where the straight-line bridging and roofing members like beam and lintels are not available. The locally available material may be of short length and small dimension like brick and stone which may be brought into a homogeneous surface of support only by curvature.

Sub-type of Dome:

The type of dome is governed by the plan of the room. A room with square, circular or polygonal plan alone would support a circular dome. In the plan of circular dome only one centre and one radius are used.

On the other hand, the plan of the room for an elliptical dome is rectangular in form. If a circle is drawn on any rectangle with radius having half of the shorter span which is the minimum necessary radius to cover the width of a rectangle, a large space remains uncovered. But, on the contrary, if a circle is drawn with half of the

larger span of the ractangle, it goes much beyond the shorter span. For these reasons the possibility of a circular dome on rooms with rectangular plan is ruled out.

Elliptical dome rests on three radii and three centres.

Comparative examination of the evidence:

The smaller room in the eastern block measures nearly 4.47 m. × 3.91 m. The room, therefore, for all practical purposes was square in plan. The two fragments (Fig. 6 Nos. 1, 2) found in this room have very prominent curvature and the horizontal section at bottom is circular in plan. Since the circle has one centre and one radius, these pieces form part of a circular construction. The plan of the room and the nature of fragments both lead to the conclusion that the surmounting structure was a circular dome. This conclusion is further affirmed by the fact that the resultant circle from the radii of these pieces rests on the four walls at their mid-length.

The larger room in the eastern block is rectangular in plan, the sides measuring 7.51 m. × 3.91 m. The fragments discovered within this room may be divided into two groups from the point of view of their geometry. To the first group belong those pieces (Fig. 6, Nos. 3, 5, 6) which have one radius and one centre. The fragment of the second group (Fig. 6, No. 4) has two centres and two radii. The surmounting structure of which the latter formed part is therefore elliptical in shape. The fragment (Fig. 6, No. 4) having two radii and two centres seems to be the piece at the junction of the major and minor arcs of the ellipse.

Determination of the Height of Domes (Śikharas)

An attempt has been made in figure 7 to determine the approximate heights of the domes (Śikharas) in the eastern block. For this purpose an intensive survey of the available fragments of the domes was carried out. The mean thickness of the bricks is 5.33 cm. and

that of the mortar between two courses is 4.82 cms. The combined mean thickness of brick and mortar is 5.08 cms. The mean depth of the offset in the corbelled courses is 3.81 cms. The major and minor radii of curvatures of the fragments available in room ER–2 (rectangular in plan) are 5.94 m. and 1.27 m. respectively. It has already been discussed why a surmounting curved structure should have been elliptical in shape. With the help of these two radii, ellipse was drawn in room ER-2; concentric rings were drawn within ellipse from the three centres of the outermost ellipse representing the mean depth of offsets of the corbelling courses. This produced 71 concentric rings corresponding to the 71 courses of the corbels. Allowance was also made for the eye opening of the domical structure at its apex.

The total height of the surmounting structure, therefore, can be mathematically determined in the following manner:

Assuming the total number of mortar courses=n′ and the mean thickness of mortar in each course=Z, the thickness of the mortar used would be $n' \times Z = (M)$——(i).

Similarly assuming the total number of brick courses as n″ and the mean thickness of a brick as Y the total thickness of brick courses would be $n'' \times y = (B)$——(ii). Therefore, $M + B = n' \times Z + n'' \times Y$, i.e. the total height of the surmounting structure = (H)——(iii).

According to the above formulae we get the total height of the elliptical surmounting structure over ER–2 as 7.24 m.

Height for Circular Dome:

Similarly the maximum radius of curvature for the circular dome in plan, over from ER–1 is 2.48 metres. The basis for determining the circular nature of the dome has been explained earlier.

Within the circle of the maximum radius of curvature, concentric circles were drawn representing the offset courses of corbels on the basis of the mean depth of the offsets. This yielded 61 concentric

circles. With the method described in connection with the calculation of the height of the surmounting structure over the room No. ER—2, the height of the dome over room ER—1 was determined as 6.22 m.

Placing of the Fragments:

Having arrived at the height of the domical surmounting structures on Room No. ER—1 and ER—2, the next task was to find out the actual places the fragments occupied in the surmounting structures over the two rooms. The placing of these fragments would ultimately determine the precise form of the actual domes.

Figure 8 illustrates the placing of the fragments on plan of ER—1 and ER—2, and also the place they occupied in the section of the surmounting structure.

The reasons for inferring a circular dome as the surmounting structure over Room No. ER—1 have been recorded earlier. The two available fragments 1 and 2, were placed against the concentric rings drawn on the basis of mean depth of the offsets.

Similarly, the four fragments from Room No. ER-2 marked as 3, 4, 5 and 6 on plan, were placed against the concentric rings drawn within the ellipse, on the basis of the mean depths of the offsets. Of the four fragments selected for purposes of restoration, three of them, i.e. 3, 5, and 6 have radii which indicated that they were to be placed within the major arc of ellipse. Only fragment 4 had two radii, related to those of the major and minor arcs of the ellipse. Evidently this fragment was to be placed at the junction of two arcs—minor and major arcs of ellipse. With the help of the radii of curvatures of each piece, the respective positions of all these four fragments were determined on the plan.

Fig. 6 illustrates the horizontal and vertical sections of the fragments cut along most informatory places. The difference of inner and outer radii of curvatures of the horizontal sections of the fragments

nos. 3, 4, 5 and 6 indicate the respective thickness of vertical sections of the fragments at their respective bottom and top. The thicknesses of vertical sections of fragment No. 3 at the bottom and at the top are 0.63 m and 0.58 m respectively; that of No. 4, 0.50 m and 0.48 m; that of No. 5, 0.48 and at both the ends, while that of No. 6, .45 m and .43 m respectively. From the studies, it is clear that there is gradual reduction in the thickness of the sections at tht two ends i.e. the upper and the lower of each fragment, and also the reduction is greater in the case of No. 3, which shows that this fragment is a part of the lower portion of the surmounting structure. Similarly, it can be inferred that Nos. 4. 5 and 6 are in the ascending order. and that there is not much gap in the actual positions which they occupied. From the nature of their haunches nos. 5 and 6 seem to represent close proximity. It is also to be observed that the haunches gradually widen towards the top of surmounting structure.

The level of the fragment at its respective position in the surmounting structure is governed by the horizontal distance of the fragment from the outermost ring, in addition to the thickness of the mortar of the brick courses indicated within that distance. The level of the bottom of the fragment will thus be equal to the courses of bricks multiplied by their mean thickness together with the mean thickness of the intervening mortar. The inclination, as it has already been indicated, will be represented by the difference between the radii of curvatures of bottom and top of the fragment on the plan. Accordingly, fragments 3, 4, 5 and 6 were placed in their respective positions with their respective inclination towards the vertical axis of symmetry. The placing of these fragments restored the shape of the surmounting structure over Room No. ER-2. The topmost part and the eye opening are conjectural but the conjecture is based on the tendency of the inclination of the fragments and the necessary requirements of the eye opening. The base of this portion has been restored on the basis of evidence of fragments from Room No. ER-1.

The emergent profile of this surmounting structure reveals certain turning points of curvatures in the section which in their totality provide a foliated appearance. It appears that this surmounting structure had five foliations both on the inner and outer surfaces, and

a number of horizontal haunches on the inner surface of the crowning part.

*Restoration of Dome (Śikhara) over Room No. ER-*1:

Only two fragments, nos. 1 and 2, are available in Room No. ER-1, but they proved invaluable for purposes of restoration. The principles of restoration have already been discussed in connection with Room No. ER-2. Attention may now be invited to fragment no. 1 in Fig. 6. This fragment is extremely interesting because its three sides—inner, outer and base—are fully preserved. From the position in the plan it was evident that it was basal fragment of surmounting structure which, as explained earlier, was circular in plan. According to the evidence of the fragment, the surmounting structure was vertical at its base at the outer side upto a height of 43.2 cms. representing an edge beam circular in plan at the base of the dome. The inner surface and the outer one above the vertical part had inclinations as in the surmounting structure over Room No. ER-2. The difference between the thickness at the top of this fragment and the bottom of fragment 2, is 2.0 cms., which shows their close proximity. These two pieces were therefore restored against the height according to the principles discussed above. The restoration reveals foliated inner and outer profile like the dome (Śikhara) over Room No. ER-2. It was only natural to assume that the contiguous surmounting structures over the three rooms of Eastern Block would have a symmetrical dome and a symmetrical body. The restoration of the Śikhara or the dome over Room No. ER-1 is based on a proportionate reduction of the dome or Śikhara over Room No. ER-2.

Since the width of Room Nos. ER-1 and ER-3 is the same, the height of the dome and the profile of dome on Room No. ER-3 have been conjecturally restored on the principle of symmetry.

The most significant conlcusion emerging from this restoration is the Śikhara-like shape of the surmounting structure. This establishes that the Śikhara which is so closely associated with majority of

Hindu temples, had already evolved in its typical curvilinear north Indian characteristic in the 1st—2nd century A.D., and that it was a popular roofing device on secular structure-like palaces of kings.

EVIDENCE OF INDIAN INSCRIPTIONS AND LITERATURE

We get inscriptional as well as literary evidence of towers as constituents of buildings in the early centuries of the Christian Era. The Hathigumpha Inscription of Khāravela (1st Century A.D.)[9] throws interesting light on the plan of the city of Kaliṅga. In this connection mention is made of Sihara (tower) in addition to Gopura (gate-house), Pākāra (wall), Nivesana (residential buildings), Taḍāga (tank), Uyāna (garden), Rāja-nivāsa Mahāvijaya-pāsāda (the royal residence, the Great Victory palace), Vīthi (road), Catara (square), and Palikha (gate-bar). The record of the 12th year has the terms Vīthi, Catara, Palikha, Gopura and Sihara in plural forms (Vīthi-catara, Palikhāni Gopurāṇi Siharāṇi). The expression 'Nivesana-sihara' also occurs in the same record[10]. From this it is quite clear that towers were constructed in residential buildings (nivesana) also.

In the chapter dealing with the construction of forts, Kauṭilya in his Arthaśāstra refers to Toraṇaśiraḥ i.e. the crest of the arch.[11] It has been conceived to be the part above the frame of the gate.[12] According to P. K. Acharya, it is employed both as an architectural member as well as an ornament to buildings.[13]

The Milindapañha, a non-canonical Pali text of Buddhism, of which Books I to III were translated into Chinese between A.D. 317—420, gives a picturesque description of Sāgala, the capital of Milinda who has been identified with the Indo-Greek king Menander. Here we find allusion to Gopura-toraṇa.[14] It has been suggested by Barua that where Gopura is employed in the sense of gate-house or gate-tower, Toraṇa in the sense of gate or gate-way is implied there.[15]

In the same context we get the expression 'himagirisikhara-saṅkāsa-vara-bhavana,' in the Milindapañha which literally means

magnificent buildings resembling the peaks of the Himalayas.[16] This gives not only the idea of height but also that of broad resemblance in shape and the latter can be postulated only in respect of buildings having towers (Śikharas). This conclusion is further strengthened by the inscriptional evidence of buildings having towers, noticed above.

The Mandasor inscription (436 A. D. and 473 A. D.) of Bandhuvarman[17] reads :

Kaliāśatuṅgaśikharapratimāni

Cānyanyabhānti dīrghavalabhīni savedikāni.

Here also the high mansions of the city of Daśapura are conecived as resembling the Śikhara (peak) of Kailāśa.

In the Aṅgavijjā[18] a text breathing the atmosphere of the Kuṣāṇa Age we find Ṇakūḍa as part of building along with many others, such as Koṭṭaka, Kaḍikatoraṇa, Toraṇa, Gopura, etc. Here in the light of the meaning of Kūṭa given in the Amarakoṣa[19] the Prakrit form Ṇakūḍa appears to stand for tower. Kūṭa, Śikhara and Śṛṅga are given in it as synonyms.

The Rāmāyaṇa[20] of Vālmīki (not later than the early centuries of the Christian Era) alludes to the construction of high domes over the royal buildings of Ayodhyā. Kūṭa is the term used for dome in this text also.

ORIGIN OF ŚIKHARA

The origin[21] of Śikhara has been one of the most disputed points of Indian architecture. It has variously been traced to the stūpa, a wooden processional car, the primitive type of bamboo construction, a figuration of the *mukuṭa,* the towering head-dress of Viṣṇu or to the continuous attempt at 'the piling up of many superimposed storeys or roofs much compressed.'[22] The Śikhara is found to have acquired prominence in Hindu temple architecture from the Gupta

period[23] onwards. According to Zimmer, it was in the late Gupta period that the Śikhara (the North Indian spire) began to appear in temples.

In course of time the curvilinear Śikhara became common in Hindu temples throughout four-fifth of India with temples of this variety found as far south as the Tungabhadra.[24] It has been surmised that 'the Śikhara or spire is literally meant to point to God, to be the very embodiment of that magic axis that pillars apart heaven and earth and is variously symbolised by mountain, tree, or the Universal Man, Puruṣa.'[25]

But the term Śikhara meaning literally the 'mountain-peak' appears to have originally been used in relation to secular architecture which is clear from the epigraphic and literary evidence. Now the use of Śikhara device in the palace excavated at Kauśāmbī belonging to the Kauṣāṇa period establishes beyond doubt that it was with secular architecture that as an architectural member it was associated for the first time. Later on, the device was introduced in temple architecture, adapted to appropriate symbolism.

CONCLUSION

The results of the study of the architecture of the Kuṣāṇa Palace may be summed up as follows:

(I) The Kuṣāṇa architecture was a hybrid architecture making indiscriminate use of stone blocks of different shapes and sizes, and brickbats.

(II) It was extremely massive and imposing. The width of the walls and the towers enables us to envisage structures of considerable height.

(III) New ideas and concepts of architecture were introduced in India, especially the true arches of various types.

(IV) The builders had the knowledge of the geometry of arches and the deficiency in construction is due to the use of defective material. This phenomenon also characterises the contemporary arches in Afghanistan and U.S.S.R., from territories closely associated with the Kuṣāṇas in these two countries.

(V) The discovery of true arches in the Kuṣāṇa Palace puts in proper perspective the extant specimens in the brick temple of Bhitaragaon[26] and the monuments of Mirpur Khas.[27]

(VI) The use of the corbelling technique on a large scale in the domical structures testifies to the continuity of the Indian tradition of architecture, which is corroborated by the lack of variation in the cementing material used as mortar and plaster along with their constituents from the undressed stage of the Palace to its last phase in the Kuṣāṇa period.

(VII) Under the impetus and the new ideas of architecture provided by the Kuṣāṇas, the Indian craftsmen rose to the occasion and evolved the typical curvilinear North Indian Śikhara which later on was adopted on a large scale for the religious buildings.

(VIII) The existence of Śikhara in this period is further confirmed by the inscriptional and literary data.

APPENDIX I

EXAMINATION OF SPECIMENS OF PLASTER, MORTAR AND FLOORING MATERIAL FROM KAUŚĀMBĪ

(Report from Dr. B. B. Lal, Archaeological Chemist, Archaeological Survey of India)

Thirty two specimens comprising mortar, floor material, plaster and flush pointing material were received from Kauśāmbī excavation for scientific examination and chemical analysis. All these specimens have been examined in detail and subjected to quantitative chemical analysis. The results of chemical analysis are shown in the attached table.

From the chemical analysis it is seen that most of these specimens contain a fairly large proportion of lime and high proportion of carbon dioxide. The soluble portion was separated from the insoluble portion by treatment with dilute hydrochloric acid in the cold. The insoluble residue has been found to contain clay, coarse and fine sand and a considerable proportion of gravel, brick dust, brick fragments and in a few cases fragments of rock. Carbon dioxide has been determined in all cases and it is seen that the proportion of carbon dioxide is well above 10% in twenty one specimens whereas carbon dioxide ranging from 1.36% to 5.6 %. Only three specimens described by the excavator as floor material has been found to be free from carbon dioxide, although a small proportion of lime is found to be present in these three specimens also.

The results of chemical analysis show that three specimens (Sr. Nos. 10, 12 and 14) are completely free from carbon dioxide and contain only 1.27 to 1.66 percent lime and 0.24 to 0.33 percent magnesia. These are therefore composed of mud.

Treatment of the specimens with hydrochloric acid has resulted in dissolution of calcium carbonate and the residue left behind has been examined in all cases. As already described most of the speci-

mens of residue have been found to be composed of clay, coarse and fine sand, gravel, brick dust, and brick fragments but there is no evidence for the use of "Surkhi" except in the Sp. No. 14 which has been described as floor material. There is no doubt, however, that brick dust and coarser brick fragments are present in the insoluble portion of several specimens.

From the above it is observed that mortar containing considerable proportion of lime has been used in the palace. Good lime mortar containing a considerable proportion of lime in the ratio of 1 : 3 or 1 : 4 (1 part of lime to 3 parts of sand, 1 part of lime to 4 parts of sand has been used in many cases but weak lime mortar containing lime and sand in the ratio of about 1 : 8 has been used in several cases. The floor material has generally been found to be deficient in lime, but specimens of plaster and mortar have been found to be composed of lime and sand in the ratio of 1 : 3 to 1 : 12. The material from flush pointing has been found to contain 40.60% lime which is the highest in all the specimens examined above. It contains 30.12% carbon dioxide. It is therefore fat lime containing about 20% sand. The lime sand ratio in this case is therefore 4 : 1.

Although one specimen has been described as floor material containing "Surkhi", No. 13, yet it is a doubtful case of surkhi and some more specimens of this type have to be examined before the use of surkhi can be confirmed. It is probable that finer brick dust found its way into this floor material accidentally and it is probable that the craftsmen of the time were not fully conversant with the use of Surkhi or the hydraulic properties of lime obtained by burning calcareous material containing a sizable proportion of clay.

ANALYSIS OF SPECIMENS OF PLASTER

Sl. No.	Specimen No.	Description of Specimen	Nature of specimen	Chemical	
				Insoluble in HCl.	R_2O_3
1	2	3	4	5	6
1	M/1. KSB-XV (1960-61)	Mortar from the foundation of undressed stone wall trench T3	Mortar	57·80	3·77
2	M/2 ,,	From dressed stone wall trench T3	,,	53·00	2.42
3	M/2 ,,	From the foundation of circular stone tower on N. E. Corner Tr. 42	,,	54·42	1·42
4	M/2 ,,	From circular stone tower on N. E. corner Tr. 42	,,	49·46	5·50
5	M/2 ,,	From the foundation of circular stone Tower on NW corner Tr. A2	,,	62·30	3·95
6	M/2 ,,	From the foundation of main east return wall Tr. U4	,,	74·90	3·65
7	M/2 ,,	From the Western return wall Tr. A5	,,	57·76	3·80
8	M/3 ,,	From the main stone wall Tr. P3	,,	51·96	4·00
9	M/4 ,,	From the foundation of rectangular stone tower Tr. 03	,,	53·80	4·00
10	F/2 ,,	Trench S3	Floor material	91·99	2·43
11	F/3 ,,	Trench—P5	do.	76·13	2·40
12	F/3 ,,	Trench—N3	do.	93·95	1·38
13	F/4 ,,	Trench—O6	do.	77·87	·32
14	F/5 ,,	Trench—N4	do.	91·72	1·36
15	F/7 ,,	Trench—S5	do.	84·08	3·10
16	F/8 ,,	Trench—M4	do.	85·18	4·04
17	F/10 ,,	Trench—V4	do.	52·72	3·58
18	M/1 ,, 62	From the foundation of undressed stone wall Tr. WA-41	Mortar	54·16	4·30
19	M/1 ,, 62	From undressed stone wall WA-42	do.	56·04	3·96
20	M/2 ,, 62	From the foundation of dressed stone wall Tr. WB-42	do.	45·06	3·78
21	M/4 ,, 62	From stone drain Tr. F-44	do.	47·40	6·80
22	M/5 ,, 62	From Southern wall of Western Block Tr. G 42 (G 44 ?)	do.	56.36	3·80
23	M/10 ,, 62	Material used in the Mortar of arches Tr. Q 42	do.	50·70	7·00
24	P/6 ,, 62	CXXIII-CXXIV-4′ Tr. R-42	Plaster	44·32	7·10
25	P/10 ,, 62	LXXXIV-LXXXV-2′ Tr. M-43	do.	53·66	5·70
26	F/P-4 ,, 62	Stone drain Tr. 44	Material used in flush pointing	17·32	6·80
27	F/6-62	CXXI-CXXII Tr. R-40	Material used in floor	83·20	2·60
28	F/7-62	LXXIX-LXXX Tr. L-40	do.	86·60	3·60
29	F/8-62	XCIX-C Tr. O-42	do.	82·20	3·94
30	F/9-62	XLVII-XLVIII Tr. G-42	do.	79·08	2·66
31	F/10-62	CVIII-CIX Tr. P-42	do.	68·34	6·82

ETC. FROM KAUŚĀMBĪ

Analysis						
Cao	Mgo	Loss on ignition	H_2O	Alkalies by difference	Total	Carbon dioxide determination
7	8	9	10	11	12	13
13·22	·80	12·92	2·00	9·49	100·00	11·91
21·84	·38	14·36	1·54	6·46	100·00	16·44
21·72	·39	14·54	· 9	6·61	100·00	15·41
25·76	traces	8·96	—	10·32	100·00	16·96
16·10	do.	11·71	—	5·94	100·00	11·64
11·65	do.	4·07	—	5·73	100·00	8·32
14·95	do.	10·94	—	12·55	100·00	10·72
23·43	do.	14·10	—	6·51	100·00	17·16
22·33	do.	16·86	—	3·01	100·00	15.88
1·27	·26	—	—	4·05	100·00	—
10·49	·39	—	—	10·59	100·00	5·64
1·31	·24	—	—	3·12	100·00	—
9·92	·48	—	—	11·41	100·00	5·52
1·66	·33	—	—	4·96	100·00	—
2·68	·89	3·74	17·16	5·51	100·00	2·12
3·50	·81	6·06	15·84	1·41	100·00	3·08
22·28	·88	19·70	36·96	0·84	100·00	16·24
22·40	1·05	17·43	36·96	0·66	100·00	17·60
18·48	1·15	18·02	39·60	2·35	100·00	13·76
24·36	1·10	21·16	52·80	4·60	100·00	13·34
22·61	traces	9·12	—	14·07	100·00	14·60
18·46	do.	6·42	—	4·96	100·00	12·48
19·04	do.	10·12	—	13·14	100·00	14·98
22·96	do.	7·64	—	17·98	100·00	15·42
23·52	do.	9·82	—	7·30	100·00	14·96
40·60	do.	32·82	—	2·46	100·00	30·12
4·37	1·04	5·01	—	3·78	100·00	3·83
2·48	0·72	3·18	—	2·79	100·00	1·36
5·18	0·96	5·77	—	—	100·00	4·42
7·70	0·36	5·17	—	5·03	100 00	5·43
17·70	1·68	8·65	—	—	103·19	13·82

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II

THE ŚAKA-KUṢĀṆAS IN THE CENTRAL GAṄGĀ VALLEY

(Mainly a Review of New Data from Kauśāmbī)

Mr. Rosenfield's hope that the materials obtained by the Allahabad University from its excavations at Kauśāmbī will make it possible to judge more accurately the controversial issue of the eastward expansion of the Kuṣāṇa Empire[1] has been justified in as much as there now exists an almost conclusive case for postulating Kuṣāṇa sovereignty in the middle Gaṅgā regions. The direct epigraphic record of the Kuṣāṇas is augmented and the foreign impact on the Gaṅgā Culture in the early centuries A.D. is revealed to be so impressive that the argument for minimising the historical importance of the inscriptional and numismatic documentations no longer appears formidable.

Kuṣāṇa study at Kauśāmbī inevitably involves the Śakas or Śaka-Pahlavas. The evidence is, in fact, very largely a mixed one, pointing to a voluminous influx of Śaka-Parthian and Kuṣāṇa elements from the west in the early centuries A.D. The stratigraphy suggests appreciable pre-Kuṣāṇa Śaka-Parthian contacts, but soon the Kuṣāṇas appear on the scene, perhaps marching along the routes opened up by their predecessors, and under their aegis the composite Śaka-Parthian-Kuṣāṇa tradition flourishes vigorously in the Gangetic valley. The striking extent it now acquires in the east cannot but be taken to reflect political domination of the Kuṣāṇas, themselves largely the bearers of the antecedent mixed culture of the north-west.

Inscriptions

The identifiable Kuṣāṇa epigraphic records at Kauśāmbī belong to Kaniṣka. To the previously known inscription of the great emperor at this site,[2] incised at the word of Buddhamitrā, the excavations have

added one which definitely bears his name but in which the date is now lost. Another new inscription, due to the piety of the same learned and familiar nun, can be ascribed to his reign with plausibility, though the king's name in it is not preserved.

The first epigraph, already briefly noticed,[3] reads:

1. Mahārājasa Kaṇ (i) ṣka.....................5 (?)
   Bodhisattvam prat (i)............
2. yati bhikhuṇi Buddhamitrā (trepṭikā Bhagava)to
   Budhasa caṁkkam (e) Pl. XIX–A

The inscription is, like its companion document of the year 2 of Kaniṣka, engraved on the base of a Mathura (Karri) red sand-stone Bodhisattva image. This feature it shares with the other record which also commemorates the religious act of Buddhamitrā.

1. Maharājasya..........6 He 3..........
2. Buddhamitrāye bhikṣuṇiye trepiṭikāye
   Bodh (i) sattv (o) (p) rati (ṣṭhā)
3. pito Bhagavato Buddhasya ca (ṁ)krame
   Pl. XIX–B

The king's name is missing in the inscription, the stone having peeled off at the critical place, but from the style of the sculpture, the Mathura stone, the manner of dating and the mention of Buddhamitrā it can safely be inferred to be a Kuṣāṇa document. The date in it was apparently specified in accordance with the usual Kuṣāṇa system of giving the year followed by the month of the season and the day. Obviously the symbol resembling the Brāhmī letter *ja* (E of the Roman alphabet) in the first line, just before the mention of Hemanta (He), stands for the year. To avoid misunderstanding it may be stated at the beginning that the vertical stroke connecting the three horizontal ones in the symbol is unmistakably deliberate, so that the temptation to read it as 3 must be restrained. An almost exact correspondence can be traced between this symbol and the one deciphered as 8 by Bühler in the first line of an inscription at Mathura.[4] Subsequently the reading was corrected into 6 which appears quite

plausible in view of the common Kuṣāṇa form of that numeral.[5] The present symbol may also therefore be taken to be the figure for 6. If there was a decimal figure before it, the king mentioned in the epigraph may have been Vāśiṣka or Huviṣka. As, however, the lacuna between *sya* (in Maharajasya) and the *ja*-like symbol does not appear sufficient for accommodating a decimal figure besides the king's name, the date in all probability is the year 6 and the inscription may be ascribed to Kaniṣka (I) to whose reign the year belongs. The association of Buddhamitrā can also be taken as pointing to that monarch rather than to a successor of his.[6]

Buddhamitrā installed Bodhisattvas at Kauśāmbī on at least two different occasions, in the year 2, if this be the correct date of the Kauśāmbī (Allahabad Museum) record,[7] and the year 6. The present inscription was recovered from the ruins of the Ghoṣitārāma monastery, the traditional abode of Buddha in the city. It is possible that the other image was also set up in the same monastic establishment which was undoubtedly a leading Buddhist centre of northern India.

Another valuable Kuṣāṇa find from Kauśāmbī is a sealing of Kaniṣka. The sealing, the only one of the Kuṣāṇa kings known so far, is 'rectangular in shape with a lug to one side. The impressions of the double threads in the lug clearly indicate that the sealing was affixed to some royal document. The finger-prints on the back of the sealing are quite clear.' The legend reads:—

1. (M)aharajasya rajati
2. rajasya devaputrasya
3. Kaniṣkasya prayo
4. ga[8]

The sealing has a symbol or monogram in the lower right-hand corner. The form of *sa* at all the four places where it occurs is looped. The manner of joining *ya* to other letters is also 'Magha.' These features might make it tempting to associate the sealing not with Kaniṣka (I) but with a later prince of that name, and this possi-

bility has of course to be kept in view. But the preceding inscription takes back the antiquity of at least looped *sa* to the time of Kaniṣka (I) and stratigraphy also seems to point to him rather than to a subsequent potentate. It may be added that writing on seals etc. is generally somewhat more advanced than in inscriptions on stone which have a tendency to retain archaic forms for a longer time.

Till date Kauśāmbī has yielded as many as four Kuṣāṇa inscriptions, including the inscriptions and sealing mentioned here. The repertory of 'foreign' inscriptions is further expanded by the discovery of votive records of Śaka donors, mainly from the ruins of Ghoṣitārāma. One fragmentary epigraph, now containing only the letters (sa) ka (ke?) na Śa ka,[9] appears to be the record of the religious gift of a person of Śaka nationality who was a lay devotee (upāsaka) of Buddhism. Alternatively,–sakana may have been his personal name. A better preserved inscription incised on the top edge of a dharmacakra stone plaque,[10] reads :—

1. Symbol. Upasakasa Nadikasa Śaka La(i?)yakasa mātu Mitṛlā........

The name Layaka of Mitṛlā's son recalls the well-known Scythic name Liaka of the western epigraphs.[11] Whether Nadika is the title or office (or the home-place) of Layaka, or the name of a brother of his, the cryptic language of the inscription makes it hard to say. The script of the record is clearly Brāhmī of the early Kuṣāṇa epoch.

The inscription was recovered from inside a stūpa together with ashes deposited in an earthen pot. Connected with it by stratigraphy was an important document, an āyāgapaṭṭa, which conclusively settled the question of the identification of Kauśāmbī by giving the name of Ghoṣitārāma. The writing on the paṭṭa, which was discovered on the floor above the ruins of the stūpa containing the Mitṛlā slab, reads[12]:—

1. Bhayaṁtasa Dharasa aṁtevāsisa bhikhusa Phagalasa
2. Budhāvāse Ghoṣitārāme sava–Budhānāṁ pujāye śilā kār....

Two Kauśāmbī inscriptions invoking the authority of king Bhadramagha and mentioning the religious act of Juvāsaka and Ujhaka, the son of Khuṇuka, are already before scholars.[13] Juvāsaka

at least was perhaps a Śaka. Of about the same time is a puzzling record commemorating the installation of an image of Śākyamuni Buddha by Naka, the son of Hasthika.[14] Like Khuṇuka and Ujhaka, these names appear to be Scythic, Hasthika being comparable to Hasthunā of the Kharoṣṭhī inscriptions,[15] but the point is of course not beyond doubt. Doubtful also is the nationality of persons like Bhapotika,[16] whose sealings are known at Kauśāmbī and whose names have an exotic ring.

None of these inscriptions and sealings belongs to a stratigraphic horizon earlier than S. P. V of KSBI-III which is the period of the beginning of Kuṣāṇa antiquities. Their palaeography, suiting the Kuṣāṇa-Magha date, calls for no special comment.

The presence of Indo-Scythians in the other areas of the Gaṅgā Valley is attested by such epigraphs as the one mentioning the Śaka donor Pharagula at Ahicchatrā.[17] Names like Sivasaka and Saka occur in the Brāhmī inscriptions from Bandhogarh, possibly the original seat of the Maghas of Kauśāmbī, edited by Dr. N.P. Chakravarti.[18] Older excavations at Bhita, Sahet-Mahet and other places present on sealings names which may have been borne by Śaka-Parthians.[19] On the southern frontier of Madhyadeśa, a Śaka resident or visitor of Tripurī, Viṭhuda Śaka, has left a seal belonging to the 2nd century A.D.[20] Fleet's postulation of a Parthian origin for king Śiśupāla of an early Ghazipur record is, however, highly problematical.[21] Besides Kaniṣka the only undoubted Śaka-Kuṣāṇas of the ruling status mentioned in the east seem to be the Mahākṣatrapa Kharapallāna and the Kṣatrapa Vanaspara, the Great Queen Prabhudāmā of two Vaiśālī seals and the Great Queen Muruṇḍasvāminī, the mother of the Uccakalpa ruler Śarvvanātha.

It is true that all the eastern inscriptions with Kaniṣka's name are on images of the Mathura (Karri) red stand-stone, and they were perhaps fashioned in the Mathura studios. It may also be conceded as probable that their donors were not residents of any of the places of dedication but pilgrims from Mathura. But in arguing from this, with J. Ph. Vogel,[22] that the data are only sufficient to 'prove that the donors belonged to the territory of Kaniṣka and not that the territory

was under Kaniṣka,'[23] do we not adopt an over-cautious approach to the evidence? Pilgrims to holy centres could no doubt import images for installation from any part—and the more influential of them would naturally be eager to bring in products of the Mathura art if 'eastern India lacked an art of its own'—, but that they had the liberty of setting up even private records of donation mentioning their own kings as the ruling monarchs in the territory of others, without any allusion whatever to the independent local chiefs, can only be accepted when such liberty has been positively demonstrated, which has not been done. To ask that injunction be cited 'against the people in general, banning the use of dates of their own choice on their records'[24] is to put the cart before the horse. It is not merely the question of private persons using 'dates of their own choice'; it is the question of the actual mention of Kaniṣka as the current sovereign in connection with events at Sarnath, Śrāvastī and Kauśāmbī. Though later Kaniṣka's regnal dating did become an era, it could not have been regarded as a customary saṁvat, to be used freely anywhere without offence to anyone's prestige or independence, so early as the year 2. For argument it may be agreed that if an image is brought from Mathura, inscription and all, it may be allowed to be set up, in order to avoid waste, even if it mentions the sovereign of Mathura and not the local potentate, but one can hardly imagine courtesy being carried to this extent if the record of dedication on the image is incised locally in the eastern centre. It would be almost certain to be sternly disallowed as a deliberate defiance of the local ruler's sovereignty; one would suppose that the scribes and monks of Kauśāmbī would be reluctant to co-operate. That the inscriptions on the Kaniṣka images were locally engraved may not be doubted, as they give not only the years and seasons, but the actual days[25] of consecration which could scarcely be exactly anticipated at distant Mathura in those remote days of difficult and insecure travel conditions. Nor do the days have any particular ritual significance to enable us to entertain the hypothesis of deliberate antecedent selection.

Now that inscriptions are known commemorating occasions widely separated in time, the view that Kaniṣka was mentioned in them without actually having exercised jurisdiction over the east is more difficult to uphold. Kuṣāṇa government, or at least Kuṣāṇa

sovereignty, seems to be implied in these records. In relation to Kaniṣka, if not to his descendants, scepticism appears to be uncalled for.

Coins

Śaka–Pahlava coins are conspicuous by their absence in the mass of antiquities unearthed at Kauśāmbī. Surface finds are of course known. A number of them have been supplied to the Allahabad University by Rai Bahadur B. M. Vyas and Shri Jineshwar Das, eminent antiquarians of Allahabad. The kings represented in the coins are Rājūvula (A/217), Hagamaṣa[26] (A/62) and possibly Śoḍāsa under the legend-jūvulaputasa (A/214). On some issues (e.g. A/215, 216) only 'Khata' (a part of Khatapa) can be read. The provenance of some coins (e.g. A/50 Pur.) of the Western Kṣatrapas of Malwa and Saurastra is not recorded. It is, however, to be noted that during its many seasons' diggings the Allahabad University has not come across even a single coin bearing a recognisable Śaka name. The Kuṣāṇa record is much more positive. Besides the considerable yield of explorations–the Vyas and Das collections alone are sufficient indication–, the excavations have brought up a large number of Kuṣāṇa pieces, all copper, struck in the name of Kaniṣka, Huviṣka and Vāsudeva.[27] They are not only isolated finds; some are from a mixed Kuṣāṇa-Magha hoard. Vāśiṣka is still unrepresented while Vāsudeva is represented by a single piece.[28]

No 'imitation' Kuṣāṇa coins, attested at Ahicchatrā,[29] Mathura etc.,[30] were discovered in the excavations, though their minting at Kauśāmbī is possibly indicated by a piece ascribed by Dr. A. S. Altekar to a local Kuṣāṇa governor of the city.[31] Other examples of imitation are known;[32] some can be seen with Shri Das. The excavations have not reported the use of Kuṣāṇa coins as amulets.[32a] The only object of the possible category of amulet identified in the excavations was a 'Roman' clay bulla,[33] paralleled by bullae from Sisupalgarh, Rajghat and other places.[34] It is probably a local copy of Roman bullae.

A unique copper coin with the legend Kosambi (ye) in the Kharoṣṭhī script was acquired by Rai Bahadur B. M. Vyas, City-

coins of Kauśāmbī with Brāhmī legend have been published,[35] but none with legend in Kharoṣṭhī. The piece must be regarded as a highly significant memorial to Śaka–Kuṣāṇā influence at Kauśāmbī.

Issues of the Later Great Kuṣāṇas also do not figure in the present excavations; and if they were at all found previously, their number is certainly not large.[36] The Kidarites (who, however, may have been Huns[37]) have a somewhat better representation, the occurrence of their coins at Kauśāmbī having been noticed before. A few coins (e.g. A/40, 41) were recently obtained by the University from Sri Jineshwar Das who possesses more. Incidentally, Sri Das also supplied a coin of Apollodotus which should be interesting so far east. We are stating on his authority and on that of Mr. Jagdish Tandon, the young Allahabad collector, that more Indo-Greek coins are known at Kauśāmbī. Sri Das has also a Parthian coin from the latter site.

The wide prevalence of Kuṣāṇa money in the whole of the central Gangetic tract is a matter of authentic record.[38] A noteworthy numismatic fact is the mention of Kuṣāṇa coin moulds at Bhita by Marshall.[39] In recent excavations Kuṣāṇā coins are reported from Ahicchatrā, Vaiśālī, Sohagaura, Mason and Atranjikhera. At Kauśāmbī they are entirely confined to S.P.V. and VI of KSBI–III. The former is dated on stratigraphical evidence C. 25–100 A.D., the latter C. 100–175 A.D. The archaeological dates are now confirmed by C-14 determination which gives for Road IV (S. P. IV) 115±100 B.C. Most of the Mitra coins are from this Sub-Period. The Radio-Carbon date for Road V (S.P. V) is A.D. 50±120. Many of the Kuṣāṇa coins and antiquities are from the stratum of this road. The coins are thus within the Kuṣāṇa chronological horizons and the evidence of these excavations at least lends no support to the conclusion that 'no coins of the Kuṣāṇas were current within first-second century A.D. in eastern U.P., Bihar and Orissa, which means that the Kuṣāṇas had no hold over these regions.'[40] In fact the Kauśāmbī data which should be more pertinent for the history of the central Gaṅgā area than the tenuous indications of Sisupalagarh[41] or Viratgarh,[42] looks like suggesting that Kuṣāṇa money was current in central and eastern U.P. only during the actual period of Kuṣāṇā hegemony,

after which it was withdrawn or withdrew itself, being substituted by copies or indigenous money. Details of the excavations at the other sites are awaited, but it is known that all of them place the Kuṣāṇa coins in a remarkably uniform stratigraphic setting, none indicating a date later than 300 or 350 A.D. : Ahicchatrā (C. 100–300 A.D.)[43], Pāṭaliputra (C. 100–300 A.D.)[44], Kumrahar (C. 100–300 A.D.)[45], Vaiśālī (C. 100–300 A.D.)[46], Sohagaura (Ayodhyā, Pañcāla and Kuṣāṇa, Period III)[47], Mason (Period III–C. 100–200 A.D.)[48] and Atranjikhera (C. 200 B.C.–300 A.D.).[49] When the exact stratigraphy is explained, the Kauśāmbī dating limiting Kuṣāṇa money to the strata of first-second century A.D. may well be confirmed. Already, Mason seems to be in line.

The much emphasized numismatic argument of averages is scarcely sufficient for excluding the Kuṣāṇas from Kauśāmbī and the other eastern sites. If more than twenty kings flourished in Mathura, which the Kuṣāṇas certainly occupied in the earliest years of Kaniṣka if not before, between C. 200 B.C. (the usually accepted date of the beginning of the post-Mauryan Mathura coins) and the beginning of Kuṣāṇa sovereignty, there is no reason why the Kuṣāṇas should be eliminated at Kauśāmbī for accommodating practically the same number of the so-called 'Mitra' kings and their few predecessors.[50] At the other end, the two (or one and a half) centuries between the withdrawal of the Kuṣāṇas, possibly early in the reign of Vāsudeva, and the Gupta conquest in the middle of the 4th century A.D. is also adequate for the kings, about a dozen or so, assigned to this era, according to the Mathura averages. The chronology of Kauśāmbī is thus not seriously disarranged by the insertion of the Kuṣāṇas in it, as some have feared. The numismatic situation in Pañcāla and Ayodhyā, similarly cited as the basis for keeping the Kuṣāṇas out, is actually easier, as the number of the post-Maurya pre-Gupta 'local' chiefs of these places, revealed by coins and inscriptions, is smaller than at Kauśāmbī.[51]

The Kuṣāṇa intrusion at Kauśāmbī effected a break in the series of the Mitra coins. From this site at least it should not be argued that no such break is discernible in the local coinages of northern India which may be be due to the coming of the Kuṣāṇas.[52] No one

acquainted with the coins of the later kings of Kauśāmbī like Neva, the Maghas and others will assign them to the same series as that of the Mitras. Symbols like the arched hill, tree-in-railing and bull are of course common, but in fabric, weight, execution and legend the later issues are so different from the earlier that they clearly form a separate category. A departure of this kind from the established tradition is probably to be explained by an interregnum of extraneous rule. It is also noteworthy that no later coins were found during the excavations in the same strata with the 'Mitra' issues. The 'Mitra' coins cease with S.P. V, which has also produced some Kuṣāṇa money from the concluding phase. But the coins of Neva are attested only from the last phase of S.P. VI onward while those of the Maghas are not noticed before S.P. VII. A numismatic gap between the early Mitra and the later dynasties is thus suggested by stratigraphy too.

The familiar conclusion of the Maghas having been the immediate successors of the Kuṣāṇas at Kauśāmbī[53] appears to be controverted by the testimony of coins and stratification. Dr. K. P. Jayaswal's intuitive characterization of king Nava (or rather Neva) as the heroic Indian who ousted the Kuṣāṇas from eastern U. P. has some support in Kauśāmbī archaeology.[54] Neva was not a Nāga, as Jayaswal thought him to be, but he was also almost certainly not a Magha.[55]

The Bhita moulds referred to by Marshall[56] are not the only ones of the Kuṣāṇas known to the Allahabad (Kauśāmbī) region. The mould of a gold type of Vima Kadphises from Jhusi is being published by Sri R. R. Tripathi of the Allahabad Museum, who is also publishing a mould of Western Kṣatrapa coins from the same site. The question if these moulds were meant for genuine coins (which, however, is extremely unlikely in the case of the Western Kṣatrapas), imitation issues or forgeries is worth investigating.[57] It is also possible that they were brought as curios or mementos from outside. Coin devices on seals are of common occurrence,[58] but in such cases the accompanying legends are lacking.

Arrow-heads

Plausible in itself,[59] Marshall's attribution of certain types of

arrow-heads to the Indo-Greeks, Śaka-Kuṣāṇas and Hūṇas at Taxila[60] receives some confirmation from Kauśāmbī. The position in the city on the Jamuna appears to be more compelling, as the exotic types are here limited to the strata of suggested foreign invasion or occupation. At Taxila, the types, once introduced, seem to have continued in the subsequent periods,[61] being made and remade, but the same cannot be said of Kauśāmbī. Here the types are confined to periods of Indo-Greek, Śaka-Kuṣāṇa or Hūṇa invasion. The intervening periods of purely Indian rule, those of the Mitras, Maghas and the Guptas, are devoid of them. It seems that the native communities did not favour the alien tradition in this respect.

The Śaka-Kuṣāṇas used the highly specialised, and definitely intrusive, three-bladed arrow-heads[62] listed as type (J) with eight varieties.[63] A single piece belongs to S.P. III. 14 (C. 255–185 B.C.).[64] It is probably a stray specimen used in the seige of Kauśāmbī by some Śaka soldier in the invading Greek army about the beginning of the 2nd century B.C. Central Asian Śakas had been the neighbours of the Greek principality of Bactria, and they often figured as mercenaries in foreign armies.[65] The rest of the eleven pieces are all from S.P. IV '18 and 19 (C. 25–165 A.D.), with two exceptions, probably accidental, from S.P. IV. 17 (C. 45 B.C.–25 A.D.).[66]

To S.P. IV. 19 belong some arrow-heads with barbed blades (K I).[67] They would also appear to have been due to the Śaka-Kuṣāṇas. The other sub-types of barbed-bladed arrow-heads, K2 and K3 (three-bladed) and K4. are 'confined to the extensive devastations after S.P. IV. 24.'[68] These devastations are thought to be due to the Hūṇas.

Though Kauśāmbī has not shown the barbed four-bladed arrow-heads, ascribed to the Hūṇas at Taxila, from the stratigraphy it is not an unreasonable surmise that K2, K3 and K4 are from the fighting equipment of the Hunish hordes who dealt a grievous blow to the city early in the 6th century A.D. As noted, the antiquity of barb goes back to S.P. III. 19. Conceivably the Śaka-Kuṣāṇas might have

been the authors of the three-bladed barbed type too, as also seems to be indicated by No. 88 on Pl. 165 in Taxila, Vol. III.

Three-bladed arrow-heads, with barb, occur in the initial centuries of Christian era and much earlier at archaeological sites in central Asia.[69] Although most published examples seem to be socketed some are of the tanged variety, and it is possible that the type provided the model for the barbed-bladed missiles used by the Śaka-Kuṣāṇas, and later by the Hūṇas, in the Gaṅgā plain.

Terracotta figurines and objects

(Pls. XXIV-XXV)

More than anything else, the problem of the Śaka-Kuṣāṇas at Kauśāmbī owes its fascination for the historian and the archaeologist to the very large number of 'Śaka-Parthian' and 'Kuṣāṇa' terracotta figurines and objects yielded by the excavations. It is as if the advent of new peoples has initiated an altogether new, and strangely attractive, chapter in the art-history of the town. Evidence of a different aesthetics and plastic idiom is almost overwhelming. The new impulse also has a vigorous impact on the ceramic traditions of Madhyadeśa.

"Figurines recovered from Sub-periods V and VI constitute a homogeneous group, sharply defined and differentiated from the figurines of the earlier sub-periods (Pls. XXIII–XXIXA). The theme and the technique of manufacture are entirely different. Almost all the figurines of this group (Pls. XXX-A–XXXIII-A and B) are hand-made and crude in appearance. Usually different parts of the body were made separately and added together before firing. The clay was much coarser and not as levigated as in the case of early hand-made figurines (Pls. XXIII-A and B). Firing was uneven and the core invariably remains insufficiently burnt. They provide the earliest specimens of free-standing terracotta figurines in the round. The technique of representation is entirely different from that of mould-made figurines (Pls. XXIII-B to XXIX-A).

The change in the theme is still more pronounced. Even a cursory glance at these figurines leaves no room for doubt that they represent a fundamental departure in tradition. The reclining figurines (Pl. XXXI, 2, 3 and 5), drummers (Pl. XXX-B, 1), women with double-knobbed head-dress (Pl. XXXI, 4), men with peaked caps (Pl. XXXII-A, 1 and 2), mother-goddesses with heavy breasts (Pl. XXX-A) and devotees placed in the shrine of the mother-goddesses (Pl. XX, XIV-B and XXX-A and B) are objects completely foreign to Indian tradition. A study of the dress, ornaments and decoration of these figurines also demonstrates clearly the change in the cultural tradition. The male and female dress, the 'dhoti' and the 'uttarīya', so very familiar from Sanchi, Bharhut, Amarāvatī and contemporary terracotta materials from different parts of northern India, is completely absent. On the other hand, these figurines offer for the first time evidence of the use of full-sleeved stitched garments for the male and female, viz., trousers, chitons, himations etc. (Pls. XXX-A, 1; XXX-B, 2 and 5; XXXIII and XXVVI-A). The fine and heavily-bedecked head-dress of the figurines (Pls. XXIII-C and XXIX-A) is replaced by uncouth and barbaric peaked caps. The rendering of the details of the body in these figurines has none of the elegance, tenderness and sophistication of the truly Indian figurines. If they are less stylized, they are, on the other hand, more virile and bear a much greater sense of movement and life. The rhythm and the realistic touch in the drummer (Pl. XXX-B, 1) is altogether missing in the truly Indian terracottas. The male heads (P. XXXII-A) are much more masculine, rugged, uncouth and forceful than the other male heads (Pl. XXVII-A). These figurines have very close parallels in objects recovered from Śaka-Parthian sites outside India. The seated mother-goddess (Pl. XXX-A), the votive tank, the drummer with a peaked cap, the dancer with bell-shaped base finished off at hip-line, the musician (Pl. XXX-B) and the reclining woman (Pl. XXXI, 3 and 5) are well-known Parthian types and have close parallels from various Śaka-Parthian sites. The fashion of hair-dressing described as the two-knobbed head-dress by Van Ingen has been remarked ever since Parthian figurines were known.[70] The tall pointed cap (Pl. XXXII-A, 1-2 and Pl. XXXIX-B) is known to have been an attribute of oriental priests in Śaka-Parthian regions outside India in different periods.[71]

The complete absence of these types from the earlier levels, coupled with their outlandish shapes, sharp differences in dress, ornament and decoration and close parallels from distant Śaka-Parthian sites like Seleucia, Dura, Uru-Warka, etc., leave no room for doubt that they represent the Śaka-Parthian cultural stream. Stratigraphically they all belong to the first and second century A.D., a period when the Śaka-Parthians, through conquest and trade, had made deep penetrations into north-western and northern India. Figurines 1 and 2 on Pl. XXX-A and figurine 1 on Pl. XXX-B are representations of or are connected with the great mother-goddess. It is clear from all these three specimens that they were meant to be shown seated in shrines of mother-goddesses or votive tanks. The ground of the shrine on Pl. XXX-A, 1 can be clearly seen underneath the feet of the seated deity. A surface-find, recently acquired, actually shows an identical type seated against the wall in a shrine of the mother-goddess. In Pl. XXX-A, 2, the bottom of the figurine clearly indicates that it was detached from a shrine. The back of the drummer with peaked cap (Pl. XXX-B, 1). again clearly shows that it was set against the wall of a shrine. These are, therefore, either actual representations of the mother-goddess or are connected with her cult.

Three specimens of reclining female figurines are illustrated (Pl. XXXI, 2, 3 and 5). Of these, 2 and 5 are draped and 3 is nude. For the meaning of these we have to depend upon the evidence of Seleucia and other sites, where they have been identified as the oriental mother-goddess.[72]

Plate XXXI, 4, a female head with two knobbed head-dresses, was disjoined from its body (Pl. XXXIII-B, 1). Similarly, the female head with two knobbed head-dresses and a seated female with a child in the lap (Pl. XXXIII-B, 2) represent the mother-goddess.

The musicians and the dancers (Pl. XXX-B) seem to have had at Kauśāmbī as elsewhere a religious or musical meaning and they were attached to the shrines of the mother-goddess. As pointed out above, the evidence in case of the drummer with a peaked cap is decisive.

The religious character of the votive tank is recognized by all students of the subject. The popularity of this type is shown by its comparative frequent occurrence. In certain cases a bird is shown perched on the wall (Pl. XXXV-B 2). In some other cases lamps are set on the top of the walls or at the base of the shrine (Pl. XXXIV-B). That the seated figures are devotees of the mother-goddess is made clear from a recent surface-acquisition, which shows three drummers seated inside against the wall of the tank or shrine (Pl. XXXV-A). The type as reconstructed from all these examples closely conforms to similar types at Ṯaxila and Ahicchatrā.

In the present stage of our knowledge the real meaning and significance of the male heads (Pl. XXXII-A) cannot but remain obscure. Some of them, particularly the ones with a peaked cap and beard or with long pointed furrowed cap, may be representations of priests.

In view of the material referred to above, the occurrence of the Śaka-Parthian types at Kauśāmbī poses a very important question. Stratigraphically they belong to the first-second century A.D. It is difficult to believe that such crude and fragile material could have been imported from a distant place. In all probability, therefore, they are local products to meet the religious requirements of a group of people at Kauśāmbī and elsewhere. The occurrence of many Śaka names in the inscriptions, excavated subsequently in the Ghoṣitārāma area of Kauśāmbī, lends further support to the view that there was some colony of Śaka-Parthians at Kauśāmbi in the first-second century A.D. It is difficult to explain the occurrence of Śaka-Parthian terracotta types during this period at Mathura, Ahicchatrā, Sankissa, Kauśāmbī, Nandangarh and Basārh except in terms of active Śaka-Parthian contacts during this period."

This long extract reproduces the text of the Memoirs of the Archaeological Survey of India, No. 74,[73] the numbers of plates indicated in the body of the text being those of the Memoirs.

From Sub-Periods VI and VII, and very rarely from Sub-Period VIII, comes another class of terracotta figurines (Pls. XXVII-A, 4

and 5; XXXVII-A and XXXVIII-A of the Memoirs) prepared both by hand as well as by mould, for which there is some reason to be identified as typically Kuṣāṇa. The moulds of these sub-periods are, however, very different from those of the earlier Sub-Periods II—IV, lacking as they do the elegance, refinement and exuberance of details in the background, of the previous series. 'They are rough, crude and shallow and the figurines produced therefrom are practically devoid of ornaments and decorations and look like impressions in clay.' The technique of the hand-made figurines has no special features. The figurines of this group are simple, complex compositions being few. Their particular association with the Kuṣāṇas is suggested by the ethnic type they seem to represent; the long face, prominent nose, protruding lips, prominent cheek-bones and sunken cheeks characterizing them do not fail to recall the similar figures depicted on Kuṣāṇa coins.

Gordon, after demonstrating the Śaka-Parthian origin of several figurines of the so-called Hellenistic style in the Gandhāra area,[74] drew attention to the occurrence of these types at Mathura, Basarh, Nandangarh, Sankissa and Hastinapur. Even apart from the striking Kauśāmbī finds, the evidence for the mid-Ganges regions is more imposing than would appear from Gordon's note. In the early centuries A.D. the new experiment seems to have been carried out in greater or lesser degree practically all over the tract.

Broken votive tanks representing the shrine of the mother-goddess were unearthed at Rajghat, Banaras.[75] The Mason (Ghazipur) excavations report 'terracotta figurines revealing foreign influence in facial features and dresses' dating from the first-second century of the Christian era.[76] A short preliminary search in the recently discovered site of Nahush-Ka-Tila in the Azamgarh District has yielded a terracotta human figurine showing clear Śaka-Parthian affiliation in the facial features and head-dresses.[77] From the Kuṣāṇa stratum at Sohagaura (Gorakhpur District) comes 'one terracotta human figurine with foreign features.'[78] Human figures with 'typical Kuṣāṇa head-dress' are noticed at Buxar (Shahabad District) in Period II, 'along with the ceramics of the early centuries of the Christian era.'[79] Dr. A. S. Altekar's effort at Kumrahar were rewarded with 'four terra-

cotta figurines with peaked head-dresses worn by Indo-Scythians' and two votive tanks.[80] He dated them C. 100—300 A.D. Vaiśālī reports 'terracotta human figures with typical Kuṣāṇa turban along with deep bowls and sprinklers from the lower levels of Period II.'[81] Chirand (Saran District, Bihar) has produced 'terracotta figures with marked foreign features of the Kuṣāṇa tradition'[82] datable between C. 100 B.C. and C. 250 A.D. Votive tanks with human figures inside were found at Bhita where they were described as 'dishes probably representing shrines.'[83] They were accompanied by human figures with marked foreign facial features,[84] belonging to Kuṣāṇa levels. 'Śaka-Parthian' terracotta similar to those from Kauśāmbī are recorded at Kasia[85] and Sarnath.[85a] On the border of our area, Ahicchatrā seems to be prolific in Śaka-Parthian and Kuṣāṇa clay antiquities including dwarfs, musicians and votive tanks with identical figures.[86]

Pottery

Analogous to the terracotta story, new developments took place in the ceramic industry in the various Gangetic centres. The great achievement of Sir John Marshall in isolating the foreign traits in the voluminous finds of Taxila is a romance of Indian archaeology. Having identified many early Greek and Hellenistic wares, he was critical enough to note that 'several of them do not make their appearance at Taxila until after the advent of the Parthians, who, as we have already seen, had a great partiality for anything smacking of Hellenism and were responsible for introducing into the north-west much of the Yavana culture which has usually been attributed to the Bactrian Greeks.'[87] Of other vessels of a Parthian, rather than Greek or Graeco-Roman origin, he mentioned the glazed amphorae, numerous bell-shaped and carinated vessels of medium or small capacity, goblets with deep flared mouth, constricted neck and horizontal ribbing and small handled censers.[88]

The Taxila story is now continued in the Punjab and the Gangetic valley by excavations and explorations. All the Parthian types, which are probably to be described as Śaka-Parthian-Kuṣāṇa, do not appear in the Gaṅgā valley; for example, the amphorae are not noticed

But at the same time Madhyadeśa has thrown up new types, demonstrably Śaka-Parthian and Kuṣāṇa, which do not figure at Taxila or were not noticed there. Another noteworthy development is a considerable expansion of our knowledge regarding the non-Indian links of some of the types by the recognition of striking analogies over a larger area in Iran, Afghanistan and central Asia.[88a]

To the Śaka-Kuṣāṇa influence at Kauśāmbī we apparently owe carinated waisted vessels, beakers and goblets with flat rims and footed base and flared mouth, incense burners with looped handles and possibly surahis with heavily decorated handles (Fig. 12, Nos. 1—10). The Śaka-Parthian workmanship of these vessels, whose incidence commences with Sub-Period V of KSBI-III, is proved by the Taxila parallels. The goblets are noticed farther afield beyond the Hindukush, where they are distributed over Khorezm (Ferghana Valley), Sogdiana and Bactria.[89] A few dishes of dull red ware at Kauśāmbī bear comparison with similar types reported from Tulhar Cemetery,[90] while certain vases treated with red wash on both sides establish a link with Yazdepe.[91]

Kauśāmbī pottery of this group ranges in date from 1st century A.D. to 3rd century A.D., while on the central Asian sites its dates vary from 2nd century B.C. to 2nd century A.D. There is little doubt as to the Śaka-Kuṣāṇas being responsible for the introduction of these new types which are listed under group II-A at Kauśāmbī. Besides this new stream of ceramic influence from outside, there can be perceived another flowing over the Gaṅgā Valley from an earlier epoch, which provided the impulse for the manufacture of potteries ascribed to the 'foreign' group I (early group—Fig. 11). Among the important types associated with this early group are cylindrical conical bowls, bowls with everted rim, concave neck, carinated shoulder, convex body and flat base and a few stamped floral designs.[92] Of these, the cylindrical conical bowl is the most important type having a wide distribution over Khorezm,[93] Sogdiana,[94] Margiana,[95] northern Bactria,[96] southern Bactria,[97] and Seistan.[98] In these regions the types belong to the Achaemenian period between 6th century B.C. and 4th century B.C. In Kauśāmbī they are datable 5th—2nd century B.C.

It would appear that in the Kuṣāṇa period the fusion of the early group I with the later group II-A resulted in the production of another class of pottery (II-B) represented by cylindrical conical goblets and vases (Fig. 12, Nos. 11—15).

Besides these distinctive pottery types, the Śaka-Kuṣāṇa period at Kauśāmbī shows examples of the archaeologically valuable designs scratched externally after firing on vessels of red and black wares which have now begun attracting the attention of Indian and foreign specialists (Fig. 13). Occuring on pot-sherds and spouted vessels of the period from the first to the third century A.D., the designs have their prototypes in the Ferghana valley and Khwarezm.[99] Among them mention may be made of latticed designs, opposed triangles alternately filled in horizontal lines, wedge-pattern, opposed triangles so arranged as to form a rhombus, triangles and wavy lines, loops and spirals, parallel wavy lines in single or double row, branch of tree, the schematic floral designs etc.[100]

Śaka-Kuṣāṇa potteries of the above description (groups II-A and II-B) are available from western sites such as Rupar,[101] Hastinapur[102] and Ahicchatrā.[103] Ahiccatrā has yielded almost all the vessel types of Kauśāmbī. In the east, carinated waisted vessels and beakers (slightly modified) occur at Vaiśālī[104] in Period II ranging from C. 150 B.C. to C. 100 A.D. The types are repeated at Kumrahar in periods II and III (C. 150 B.C. — 300 A.D.).[105] They have analogies on older classic sites like Bhita.[106] Similar ware may-be presumed at Rajghat, but cannot be asserted in the absence of authentic information. The 'scratch decoration' is reported from Hastinapur,[107] Jhusi (Allahabad),[108] Draupadighat (Allahabad),[109] Kotia and allied sites on the river Belan (Allahabad District, Fig. 14),[110] Sonpur (Bihar)[111] and Chirand (Bihar).[112] Nahush-Ka-Tila in Azamgarh may prove an important site for the study of these patterns.[113]

India's contacts with the west are further evidenced by the ceramic group III comprising surahis and enohoyas datable from 2nd cen. B.C. to 1st century A.D. This group with a pre-eminently Graeco-Roman lineage occurs over an extensive region upto the central Gaṅgā valley in the east and Iran, Afghanistan and the Soviet central

Asian republics towards the north-west. A typical specimen at Kauśāmbī is a highly decorated stamped surahi (Pl. XXVI) of thin, fine fabric with horizontal bands of embossed designs alternating with bands of lustrous red polish. The two uppermost bands are decorated with leaf patterns. The fourth and fifth bands from top have linear designs while the third and sixth bands are polished but devoid of ornamentation. The base, body and neck were made in four separate pieces and the stamping and embossing was confined to two pieces of body, the seam of which was externally quoted with bright red polish. Like a Taxila vase described by Sir John Marshall the surahi may be a local imitation of Hellenistic embossed and stamped ware. Marshall describes the embossed and stamped ware of this variety as second cousin to the well-known Megarian Arretine and Companion Wares.[114] Attention may also be drawn to a jug (Pl. XXVII) with single handle and pinched mouth imitating the head of a bird, the eyes delineated with considerable care. The type has a close parallel at Taxila (Pl. 123, No. 79-80 and Pl. 129, No. M=No. 80).

Architecture

The excavations reveal that the Kuṣāṇa rule marks a break in the tradition of architecture too. The discovery of the imposing palace complex on the Jamuna, in the south-western corner of Kauśāmbī, shows the introduction of a hybrid architecture making indiscriminate use of stone and brick for building purposes and new devices like the true arch in the first-second century A.D., whose Kuṣāṇa origin can be inferred with reasonable certainty.

In the previous periods stone and brick were used exclusively and separately for construction. The brick structures were made almost invariably of new and complete bricks, brickbats being rarely used. Stone masonary was ashlar. From the 5th century B.C. onwards, stones neatly dressed and cut served the special purpose of providing the facing of walls. In the reconstructional phase of the palace belonging to the first-second century A.D., complete bricks are conspicuous by their absence, and the walls are built almost entirely

of brick-bats. Neatly dressed stones yield ground to big unhewn blocks, while in some courses can be seen the novel idiom of the use of bricks and stones side by side. Even in such delicate and specialised constructions as arches the two materials occur together very frequently. The consequent weakness of the walls is sought to be rectified by their massive character; they are normally much thicker now. The crudeness of the construction is considerably relieved by copious application of plaster which in certain cases has a thickness of 25 to 30 cms.

Among the new constructional devices noticed for the first time in the first-second century A.D., the true arch was employed on a large scale. Four-centred pointed arch, segmental arch and semi-elliptical flat arch were used in various parts of the palace. It is significant that the new devices did not lead to the abandonment of the old and more familiar corbelled arch. The superstructure of the palace, especially its śikhara, was built on the principle of the corbelled arch.

Everything points to the conclusion that the hybrid brick-cum-stone architecture and the accompanying new devices like the true arch are the gift of the Kuṣāṇas. This point and the other aspects of the Kuṣāṇa building activity at Kauśāmbī are discussed in a separate paper.

Indication of Stratigraphy

It now remains to say a few words about the possible historical implications of some apparently significant aspects of the stratigraphy for the Śaka-Kuṣāṇa problem. The evidence is already published in the Kauśāmbī report for 1957-59,[115] which refers to S.P. IV. 18 and 19 as the period of the Śaka-Kuṣāṇas (C. 25 – 165 A.D.). Apropos S.P. IV. 18 it is stated: "Floor No. 9, constructed during this period, bears traces of conflagration, probably due to an invasion indicated by the accumulation of a layer of ash and charcoal."[116] At the end of S.P. IV. 19. 'the story of the rampart 4 ended in extensive conflagration and destruction indicating an invasion during which all the

buildings were razed to the ground.'[117] In itself, the evidence may not be decisive but it permits a hypothesis regarding the circumstances of the turmoil thus revealed in the life of the city. On chronological indication, the conflagration of S.P. IV. 18 might well be due to the onslaught of the Śaka-Kuṣāṇas on Kauśāmbī which succumbed to it. The more extensive damage at the end of S.P. IV, 19 could be the result of Indian nationalist forces asserting themselves against the Kuṣāṇa stronghold, or, more plausibly, of the policy of destruction adopted by the retreating Kuṣāṇas. S.P. IV. 17 witnessed considerable repair and addition work in the ramparts.[118] Was this the outcome of the anxiety of the 'Mitra' kings of Kauśāmbī to strengthen the defences of the town against the threatened invasion from the west?

Conclusion

There were perhaps Śaka-Parthians at Kauśāmbī before the Kuṣāṇas, but that these initial contacts had a political connotation is yet to be proved. Independent Śaka-Pahlava rulers of the central Gaṅgā zone are not definitely known from the epigraphy. The two Kṣatrapas named in the records[119] appear to be Kuṣāṇas rather than Śakas; they were anyway associated with Kaniṣka. Mahārāja Aśvaghoṣa of two Sarnath inscriptions,[120] regarded as a Kuṣāṇa Kṣatrapa by some, was probably a Hindu chief of the pre-Kuṣāṇa epoch.[121] If the Muruṇḍas mentioned by Ptolemy were pre-Kuṣāṇa,[122] they may have been Śakas, but the Muruṇḍas are as much an enigma as the chronology of the Kuṣāṇas, and, at present the most appealing hypothesis still seems to be that the name Muruṇḍa was borne by petty foreign rulers who survived the collapse of the main Kuṣāṇa power in the east. The pioneering Śaka-Pahlavas were perhaps traders, pilgrims and stray settlers.

While evidence of the Śaka-Pahlavas goes back to the pre-Kuṣāṇa days, the bulk of it is concentrated in the era of the Kuṣāṇas who soon appear at Kauśāmbī. That the Kuṣāṇas came not merely as traders and visitors but as conquerors has, we think, now to be allowed as a near—certain deduction from the cumulative data. Seven

inscriptions and one sealing mentioning Kaniṣka, numerous Kuṣāṇa coins and three coin moulds in a region which was certainly not the main centre of the Kuṣāṇa empire but an outlying province and *nothing positive to disprove the suzerainty of the Kuṣāṇas*—this indeed is testimony not inferior to what has been considered decisive in many other cases.

Apart from the inscriptions and coins, the indication of art, architecture and pottery has to be considered. So far the archaeological studies are concerned, the Kuṣāṇa age has been till now merely a part of the comprehensive bracket of 'post—N.B.P.' This was perhaps inevitable in some degree. Major sites excavated in the Gangetic valley are few, and of most of these detailed reports are yet to appear. The excavations have been vertical with a view to offering a complete time-table for the sites involved, rather than revealing particular historical and cultural strata on a large scale. The Kuṣāṇa evidence has therefore not attracted as much attention as it deserves.

An attempt has been made here to isolate the Kuṣāṇa elements at the different archaeological sites and correlate the data in order to evaluate the role of the Śaka-Kuṣāṇas in the Gaṅgā plain. The results are revealing. Śaka-Kuṣāṇa impact is writ large on archaeology. Even with the limited evidence we can discern a remarkable era in the Madhyadeśa when new forms in art, architecture and ceramics, with their genealogy going back to the areas from which the Śaka-Kuṣāṇas came, appear in profusion, affecting the entire region. The Kauśāmbī materials have focussed attention on the problem. It is no longer the question of a few Śaka-Kuṣāṇa influences here and there; it is almost the transplanting of a whole complex from the north-west into the east. There is, we cannot help thinking, Kuṣāṇa authority at the back of the phenomenon. The totality of evidence projects the picture of a Kuṣāṇa empire in which the Śaka-Pahlavas are almost equal partners. At Kauśāmbī, the palace is the bastion of that empire. The combined data are so compulsive that any indication to the contrary might have to be explained away.[123] On the slender basis of a few talismans copied from Huviṣka's coins Dr. Altekar had to ask if the popularity of Kuṣāṇa coins with Bihar ladies could be explained by trade alone. The question is now much more

pertinent. Could there be so much Kuṣāṇa evidence without Kuṣāṇa rule?

Widespread as it was in the first-second century A.D., in its purely 'foreign' aspect the Śaka-Kuṣāṇa element proved to be more or less a passing phase in the Gaṅgā valley. Kauśāmbī shows its abrupt decrease beyond the Kuṣāṇa chronological horizon and disappearance within a short time. The votive tanks, drummers, reclining women, Kuṣāṇa terracotta devotees etc., continue beyond the Magha stratum (S.P. VII) only as stray specimens, as remnants of the past thrown accidentally into the later period. The idiom of hand-manufacture and terracotta in the round continues, and so do some of the themes locally developed during the Kuṣāṇa epoch, but the foreign types go out of vogue. Here and there a few surviving traits of the Śaka-Kuṣāṇa *milieu* might be noticed. This is inevitable in so vast a region, and some of these traits seem to be assigned to later periods by unscientific digging. But it is clear that with the withdrawal of the Kuṣāṇas, the Śaka-Kuṣāṇa era is over in the domain of art and ceramics too.

One wonders if an artistic expansion not dependent on political power would acquire such impressive dimensions on the one hand and would lose its force so speedily on the other.

The languishing foreign element was perhaps patronised in some measure at the courts of the 'Muruṇḍa' chieftains in the Madhyadeśa after the disintegration of the main Kuṣāṇa power. The Muruṇdas were not improbably responsible for the imitations of the Kuṣāṇa coins, and with them would appear to have been connected the Great Queen Prabhudāmā[134] and the Muruṇḍa mother of Śarvvanātha.[125] One of them, perhaps ruling somewhere in the upper Gangetic valley, sent a present of four horses belonging to the Yueh-chi country to Funan in the third century.[126]

NOTES

1. John M. Rosenfield, *The Dynastic Arts of the Kushans*, p. 52.
2. *E.I.*, XXIV, pp. 210-2; *Calcutta Review*, July 1934, p. 83.

3. J. S. Negi, *Some Indological Studies,* Vol. I., p. 61.

4. *E.I.,* I, p. 392, No. XXII.

5. G. Bühler, *Indische Palaeographie,* Pl. IX. For corrections *JRAS,* 1905, 1905, p. 112; *E.I.,* X, p. 117 f; *JRAS,* 1911. p. 1084, Ibid, 1912, p. 154. Luders' List (*E.I.* X), p. 168. 'Date read: Sam 90 9 gri 2 di 10 6.' The present symbol bears some similarity to the (rather uncommon) Kuṣāṇa figure 10 (Bühler, *Indische Palaeographie,* Pl. X), but the resemblance in this case is remote. So is the resemblance with the Mathura figure for 50 reproduced by Prof. Mirashi, *E.I.* XXVI, p. 294.

6. At two places (9 in line 3 and 4 in line 1) the letter *sa* may appear to be of the advanced looped type. In line 2 (letter 17), however, it has the early hooked form. It might be argued that the developed form indicates a date later than that of Kaniṣka. But the same form is also found in the Mathura pedestal inscription of the year 14 usually ascribed to Kaniṣka I (E.I., XIX, pp. 96 f.) though some think of a later Kaniska (J. E. Van Lohuizen–De–Lew, *The "Scythian" Period,* pp. 306 ff; *E.I.,* XXVI, p. 296). The looped shape is used in the Kaniṣka sealing noticed above. Adris Banerji (*JNSI,* XIII, p. 108) considers it not improbable that the Bala image was dedicated in the time of Kaniṣka II. His ground is stylistic, which is partly also that of *The 'Scythian' Period.* He is probably referring to the *Śrāvastī* image on which the date is effaced. The Sarnath image bearing the year 3 obviously cannot be the time of Kaniṣka II.

7. From personal inspection of the inscription we support the probability of the date being in the year 2. Doubt has, however, been expressed, H. C. Raychauduri, *PHAI*^{6}, p. 473, n. 6.

8. *MASI,* 74, p. 79. 'There is little difference in the manner in which *U* and *ra* are joined. Consequently letter 5 in line 3 can be read both as *pu* and *pra.*' See Pl. XX-A.

9. Pl. XXI–A.

10. Pl. XXI-B. The thirteenth letter is clearly *ya* in the original.

11. *CII,* II, pp. 25, 144.

12. *Annual Bibliography of Indian Archaeology* (Kern Institute), XVI, Pl. V, A See Pl. XXII.

13. J. S. Negi, op. cit., pp. 64 f.

14. Pl. XXIII.

15. CII, II, p. 167.

16. *MASI,* 74, p. 80.

17. *Bulletin of Ancient Indian History and Archaeology*, (University of Saugar), I, p. 8.

18. *E.I.* XXXI, p. 177. Chakravarti thinks that 'saka' in these names stands for Sanskrit Śakra. The clear Śaka name on the sealing in n. 20 below has Saka. Seals with the Sanskrit form Śaka are known (*JNSI*, XXII, p. 124).

19. e.g. Bhuṭaka, Bhubhula, Cucaka etc., *ASI, AR*, 1911-2, pp. 57 f. Some seals show symbols found on the coins of Vima Kadphises (Ibid, p. 53).

20. *JNSI*, XVI, p. 74.

21. *CII*, III, p. 250.

22. *E.I.*, VIII, p. 173. The argument of Vogel is further developed by P. L. Gupta (*IHQ*, XXIX, pp. 205 ff). The two extreme sides of the controversy regarding the eastward expansion of the Kuṣāṇa empire are exhaustively delineated in Gupta's paper and in that of Adris Banerji (*IHQ*, XXVII, pp. 294 ff). See also *Indian Numismatic Chronicle* III, pt. I, pp. 11–21; *JNSI*, XII, pp. 122 ff; *JBRS*, XLVII, pp. 394 ff.

23. *IHQ*, XXIX, p. 210.

24. Ibid, p. 211,

25. Sarnath: Year 3, third month of Hemanta, on the 20th day; Kauśāmbī (Allahabad Museum): year 2, second month of Hemanta, on the 8th day. In the second of the inscriptions mentioned above the day was evidently given but it is no longer available. It is difficult to say if the day was specified in the first inscription, but it probably was.

26. The reading on this coin seems to be Hagameśa, which is rare.

27. *MASI*, 74, p. 19.

28. Ibid., p. 82.

29. *Ancient India*, No. 1, p. 39.

30. *IHQ.*, XXIX, p. 220.

31. *JNSI*, VIII, p. 10.

32. *JNSI*, XX, p. 146. Dr. Altekar notes that 'imitations of Kuṣāṇa coins in the Gangetic plain were quite common in the third century, and the present coin belongs to that class.'

32a. Huviṣka's coins seem to have been popular as models for amulets or talismans. Cunningham, Mahābodhi, Pl. XXIII, 17; *JNSI*. XX, pp. 1 ff; Indian Archaeology, 1955-56, p. 23, Pl. XXXV-B. Ahicchatrā has provided examples of Kuṣāṇa coins used as amulets. Besides one referred to by Dr. Altekar, Shri

Jineshwar Das has two Kuṣāṇa copper coins, probably of Huviska, which were gilded and used as amulets.

33. *Ancient India, No.* 5, p. 102. See Pl. XX-B.

34. Ibid, pp. 101 f.

35. The Kauśāmbi Museum of the Allahabad University possesses one such coin (A/52). Another coin (A/43P) has the legend Kośabikānām (already noticed).

36. In the summary report of the earlier excavations near the Aśoka pillar at Kauśāmbī, C. C. Dasgupta does not refer to any coins of the Early or Later Kuṣāṇas. See also, *JNSI*, XII. pp. 74 ff.

37. *JNSI*, XVIII, p. 38.

38. *IHQ*, XXIX pp. 294 ff; *IHQ*, XVII, pp. 29 ff; *JNSI*, XIII, 107 ff; B. Bhattacharya, *The Age of the Kushanas*, pp. 232 ff; *JBRS*, XLVII, p. 394.

39. *ASI, AR*, 1911-2, p. 65.

40. *IHQ*, XXIX, p. 218.

41. *Ancient India*, No. 5, p. 97.

42 *JNSI*, II, p. 124.

43. *Ancient India*, No. 1, p. 39.

44. *Indian Archaeology*, 1955-56, p. 237.

45. *Report on Kumrahar Excavations*, 1951–55 p. 20.

46. *Indian Archaeology*, 1958-59, p. 12.

47. Ibid, 1961-2, p. 56.

48. Ibid, 1964-5, p. 77 (Manuscript copy).

49. Ibid, 1960-1, p. 35.

50. The number of early Kauśāmbī rulers of the pre-Kuṣāṇa period cannot be exactly determined. Till 1953, about 20 seem to have been known. *IHQ*, XXIX, p. 210. Prof. K. D. Bajpeyi says that his list of 'Mitra' kings of Kauśāmbī now includes 25 names. *JNSI*, XXVI, p. 5. But as the coins of all these rulers have not been published, it is difficult to say how many of them actually ruled at Kauśāmbī. Further, these 'local kings' have the appearance of being oligarchs some of whom may have ruled over small adjoining districts at the same time. The possibility, already envisaged, of their subordination to the Kuṣāṇas, has also to be kept in view.

51. A total number of 24 kings of Pañcāla is indicated by Prof. Bajpeyi in *JNSI*, XXIV, pp. 12 f. Of these at least three belonged to the post-Kuṣāṇa

period. Assuming that all the others flourished earlier, there should be no difficulty in ascribing them to the pre-Kuṣāṇa era. The Ayodhyā series is smaller.

52. *IHQ*, XXIX, pp. 211 f.

53. *The Vākāṭaka-Gupta Age*, p. 43; Motichandra, *Kāśī-kā-Itihāsa*, p. 74; *A Comprehensive History of India*, p. 267.

54. J. S. Negi, *Some Indological Studies*, Vol. I, pp. 85 f. Dr. Altekar accepted the position that Neva was a predecessor, not a successor, of the Maghas. *MASI*, 74, p. 84.

55. J. S. Negi, op. cit., p. 85.

56. *ASI, AR*, 1911-12. p. 65.

57. Dr. Altekar is sceptical about the genuineness of the numerous *Kuṣāṇa* gold coins made from mould. *JNSI*, XV, p. 69.

58. *JNSI*, III, p. 99; *IHQ*, XXIX, pp. 222 ff.

59. Despite the scepticism of Donatella Mazzeo, *East and West*, Vol. 13, No. 1, p. 55.

60. *Taxila*, II, pp. 547 ff.

61. *JBRS*, XLVII, p. 138.

62. *Taxila*, II, p. 547.

63. G. R. Sharma, *The Excavations at Kauśāmbī* (1957–59), p. 46.

64. Ibid, pp. 45 f.

65. *Cambridge History of India*, Vol. I (Second Indian Reprint), p. 305.

66. G. R. Sharma, op. cit.

67. Ibid.

68. Ibid.

69. V. A. Shiskin, *Varakhsha*, p. 44. PHC. 9, fig. 2; A.M. Mandelshtam, *Nomads on their way to India*, p. 203, figs 1–10, 12–14; K. F. Smirnov, *Early History and Culture of Sarmatov*, p. 307, Ia; p. 312, 5B; p. 314, *IA*, p. 315, fig. 22.

70. W. Van Ingen, *Figurines from Seleucia on the Tigris*, p. 36; also V. S. Agrawal, *Ancient India*, No. 4, p. 125.

71. Van Ingen, op. cit., p. 23.

72. Rostovizeff, *Yale class stud.* 5 (1935), 180; as quoted by Van Ingen, op. cit., p. 21.

73. pp. 50–52.

74. *'Early Indian Terracottas,' Journ, Ind. Soc. Oriental Art, XI* (1943), pp. 160 ff.

75. *Indian Archaeology,* 1957-58, p. 50; Moti Chandra, *Kāśī-kā-Itihāsa,* pp. 80 f.

76. *Bulletin of Museums and Archaeology* in U.P., No. 1, p. 31; *Indian Archaeology.* 1964-65 (Manuscript copy), p. 77.

77. The objects are at present with Sri Sidhnath Prasad, a research scholar in the Department of Ancient History, Culture and Archaeology, Allahabad University.

78. *Indian Archaeology,* 1961-62, p. 56.

79. Ibid, 1965-66, (Manuscript copy), p. 21.

80. *Report on Kumarahar Excavations,* p. 113; Pl. XXXVI-B, Nos. 1—3, XXXVIII—No. 2 (votive tank), XLV—B, No. 2 (part of votive tank).

81. *Indian Archaelogy,* 1960-61, p. 6.

82. Ibid, 1962-63, p. 6 (Pl. XIV-A).

83. *ASI, AR,* 1911-12, p. 76, Pl. XXV, figs. 47-48. Plate XXXII, figs. 11, 12, represent sculptures with typical Śaka-Kuṣāṇa 'helmet'.

84. Ibid, Pl. XXIII.

85. Ibid, Pl. LXIV and LXVI.

85a. *ASI,* AR, 1907-8, p. 55.

86. *Ancient India,* No. 4, Pls. XXXVII-A, XXXVIII and XXXIX.

87. *Taxila,* II, p. 401.

88. Ibid.

88a. We are deeply grateful to Professor Y. A. Zadnoprovosky for information about the materials of the central Asian sites.

89. *Ancient India* (Moscow 1964), Fig. 17, No. 6, (Bactria), 7, 8, 10 (Sogdiana) Moscow—1940, 9—11 (Khorezm) 1-(Taxila) Marshall, *Taxila,* Vol. III. Pl. 154, A. Mandelshtam, *Nomads on their Way to India* (Pl. No. 24 Fig. 4 etc., Table 17, Fig. 9).

90. Ibid, Pl. 37.

91. Mason, *MIA* 73, Table 37, Figs. II, VI.

92. G. R. Sharma, *'India's contact with Western and Central Asia, with special reference to the evidence of Kauśāmbī C, 600 B.C. to 500 A.D.'* Paper

read at the International Conference on the Art and Archaeology of Iran, April, 1968.

93. M.G. Borobyieva, *Pottery of Khorezm in the Antique Period,* Table No. 1.

94. V. M. Mason, *The Ancient Farming Culture of Margiana.*

95. D. Schulamberger—*Le Prospection Archaeologique de la Bactres (premptemps,* 1947), *Syria* XXVI, 1949, pp. 181–88.

96. R. Ghirshman, *Fouillosdenad-i-alidamsle Seistan, Afghan perve des arts Asia pi quues parts* 1959, Vol. VIII.

97. Diyakonov—*Archaeological Excavations in the lower parts of the River Kafringan (Kobidan).*

98. Sccarato—*Excavations at Dahani-Ghulaman (Seistan), Iran, East and West,* Vol. XVI, 1966.

99. Zadnoprovosky—*The Ancient Farming Culture of Farghana MIA* 118, 1962.

100. Fig. 13.

101. *Ancient India,* No. 9, fig. 6.

102. Ibid, Nos. 10 and 11, p. 64 fig. 20, Nos. XXIII–XXVIII.

103. Ibid, Fig. 3, 47.

104. *Vaiśālī Excavations,* 1950, p. 40, Fig. 18, Nos. 64B, 67, 67a, 76, 77 and 77a; Ibid, Fig. 18, Nos. 64 and 64a.

105. *The Kumrahar Excavations,* 1951–55, Fig. 35, Nos. 4-5, Fig. 36, No. 3.

106. *ASI, AR,* 1911-12, Pl XXX, 59, 60, 90, 96, 100.

107. *Ancient India,* Nos. 10 and 11, Fig. 23, Nos. 5, 7 and 9.

108. *Journal of Indian Museum,* Vol. XIV–XV, 1958–60.

109. Materials in the Allahabad University Kauśāmbī Museum.

110. Materials in the Allahabad University Kauśāmbī Museum.

111. Materials personally seen in the Patna University Museum.

112. Materials personally seen in the Patna University Museum.

113. Materials in the Allahabad University Kauśāmbī Museum.

114. Taxila, II, p. 434, no. 1.

115. G. R. Sharma, *The Excavations at Kauśāmbī,* 1957–59, p. 36.

116. Ibid.

117. Ibid.

118. Ibid.

119. *E.I.,* VIII, p. 176.

120. Ibid, pp. 171 ff; *Luders' List* Nos. 925, 926. One of the inscriptions is dated in the 40th year.

121. Motichandra, *Kāśī-kā-Itihāsa,* p. 11. A sealing of the rājan Aśvaghoṣa has been found at Rajghat, Banaras. Ibid. A coin of Aśvaghoṣa was noticed by Cunningham, *CASR,* X, p. 4.

122. For the Muruṇḍa evidence, J. M. Rosenfield, op. cit., pp. 53 f.; B. Bhattacharya, *The Age of the Kushanas,* pp. 124 ff; *JNSI,* VIII, pp. 37 ff.

123. For example, if the number of the 'Mitra' kings is seen to be large, some at least of them may be presumed to have been feudatories of the Kuṣāṇas or to have ruled simultaneously in a joint aristocracy.

124. S. Chattopadhyaya, *The Śakas in India,* p. 67.

125. *CII,* III, p. 136.

126. R. C. Majumdar, *Hindu Colonies in the Far East* (second edition), p. 179.

III

SOME ASPECTS OF THE CHANGING ORDER IN INDIA DURING THE ŚAKA-KUṢĀṆA AGE

The muddled accounts[1] of the Kali Age in the Purāṇas, generally ascribed to a period[2] round about the first-second centuries A.D., reveal the undermining of the *Cāturvarṇya* (the system of four *Varṇas* or castes) on which the traditional Indian social order was based. It was believed to be partly due to the activities of the heretical religions—Buddhism, Jainism, popular Vaiṣṇavism and Śaivism, but mainly to the incursions of the foreign elements—the Yavanas (Bactrian Greeks), Śakas, Parthians and Kuṣāṇas. In the context of the dismal picture of the Kali Age the Purāṇic accounts allude to the general decline of *Dharma,* the depression of the orthodox priestly class and the indigenous ruling aristocracy, the decline and thinning away, at least temporarily, of the class of Vaiśyas who were agriculturists, merchants and traders, and the rise of the servile Śūdras.[3]

The Aṅgavijjā, a work on prognostication composed in the Kuṣāṇa period[4], throws revealing light on some aspects of this phenomenon. In the section dealing with the way of knowing the Varṇa or caste of an individual the text gives an appearance of the veritable break-up of the *Cāturvarṇya* for the time being. In the beginning we get the traditional list of the four *Varṇas*[5]—Baṁbhaṇa (Brāhmaṇa), Khattika (Kṣatriya), Vessa (Vaiśya) and Sudda (Śūdra). Then there is the enumeration of persons who exchanged the duties and occupations of their own Varṇa for those of another, and, in so doing, they either retained or could not dissociate themselves from their original Varṇa (caste) and were in this way regarded as belonging to two Varṇas at the same time. Thus we get Baṁbha-khatta, Khatta-baṁbha, Baṁbha-vessa, Vessa-baṁbha, Baṁbha-sudda, Sudda-

baṁbha, Khatta-vessa, Vessa-khatta, Khatta-sudda, Sudda-khatta, Vessa-sudda, Sudda-vessa, Sudda-baṁbha and Baṁbha-sudda.[6]

It goes without saying that the features of caste as reflected in the Manu Smṛti (C. 200 B.C.–200 A.D.)[7] represent mainly the normative social theory, whereas the Aṅgavijjā brings into relief the actual facts of social life. The Jātakas also inform us that some people belonging to higher Varṇas followed occupations other than those prescribed for them,[8] but their account appears to hold good for the earlier period. Under exceptional circumstances, as we find in the case of the Nandas, even some members of the last Varṇa which represented the nadir of social life could make their way into the fold of the ruling aristocracy. But what is noteworthy in the account of the Aṅgavijjā is that the people of the lower Varṇas began to follow on a large scale the various occupations meant for the higher ones and to claim a higher status. Thus the social convulsions and political disturbances due to the incursions of the foreigners, together with the economic developments[9] of the age and the activities of the heretical religions, resulted in a kind of social upheaval characterized not only by the downward but also by the upward trend of social mobility. Over a considerable part of Northern and Western India the foreigners became settled mainly as a ruling aristocracy who were more attracted by the heretical religious systems like Buddhism, Śaivism and Vaiṣṇavism. Even Manu[10] who upheld the orthodox ideals of social order had in a way to concede the status of Kṣatriya to the Śakas and also to some other foreigners and outlandish peoples, though he regarded them as degraded for the main reason that they at that time did not champion the cause of the traditional system. However, in the second and third centuries A.D. the indigenous rulers of the Sātavāhana and Ikṣvāku dynasties accepted in marriage princesses belonging to the Kṣatrapa ruling house of Western India.[11] The Allahabad Pillar Inscription[12] of Samudragupta also suggests that Śaka-Kuṣāṇa rulers contracted matrimonial relations with the idigenous ruling houses. The art of the Kuṣāṇa period, especially the terracotta art, found at various sites of Northern India, such as, Mathurā,[13] Ahicchatrā,[14] Bhīṭā,[15] Kauśāmbī,[16] Pāṭaliputra,[17] Rangmahal[18] etc. also points to the influx of the Śaka-Kuṣāṇas and the magnitude of their role in Indian social life. The names of

Śaka donors found in some inscriptions of Kauśāmbī are significant in this context.[19] These foreigners were, however, absorbed in the caste system in course of time. Afterwards, the various mixed Varṇa groups, noticed above, which were tending to emerge during this period were also adjusted to the framework of the *Cāturvarṇya*. However, two of them, Brahma-kṣatra (Baṁbha-khatta) and Brahma-vaiśya (Baṁbha-vessa) continued even afterwards. The theory of Brahma-kṣatra had gained a wide currency by the early medieval period of Indian history when, with the development of the feudal tendencies, the Brāhmaṇas began to leave their priestly functions and join on a large scale the ranks of the ruling aristocracy. This compound term has been applied to some rulers belonging to the Guhilot, Paramāra and Sena dynasties in the inscriptions.[20] It occurs in some inscriptions of South India[21] and also of South-East Asia.[22] The evidence of later times reveals that the epithet Brahma-Kṣatra or Brahma-Kṣatriya was borne not only by those who were first Brāhmaṇas and then became Kṣatriyas, but also by some descendants of the anuloma (regular) and pratiloma (irregular) unions between members of the first two Varṇas.[23] In certain regions Brahma-kṣatra also became more or less like a sub-caste group. The term Brahma-vaiśya has, however, been noticed only in one inscription of later times[25] and, as such, this group appears to have been quite insignificant.

At one place in the Aṅgavijjā[26] the four major castes are classified intwo two categories—Ajja (Ārya) and Milikkhu (Mleccha). In this context the first three Varṇas or castes are included in the category of Ārya and the latter appears to have comprised the indigenous Śūdras and aboriginal tribes as well as the foreigners and outlandish people. The Ārya Varṇa was usually contrasted with Dāsa Varṇa during the Ṛgvedic period[27] and with the Śūdra Varṇa during the later Vedic period.[28] In the Sūtras also which belong to the post-Vedic period the first three Varṇas (dvija classes) are set in contrast to the Śūdras.[29] The term Mleccha in Indian literature was ordinarily used for the indigenous tribes as well as foreigners who were outside the pale of the orthodox social system and culture.[30] The indigenous Śūdras forming part of the orthodox social organization had never been counted among the Mlecchas.[31] This attitude, as the Manu Smṛti suggests, was partly generated by the deflection and refractoriness[32] of the

Śūdras. In Manu we clearly notice a sort of nervousness about such activities of these people.

As a matter of fact we perceive many currents and cross-currents in the social life of the age. Another division of society in the Aṅgavijjā is into Ajja (meaning here nobles who were free persons belonging to the propertied class), and Pessa[33] (slaves, servants, hired labourers and others, most of whom, as this classification itself indicates, may have been under varying degrees of servitude and dependence). The Ajja (Ārya) class is said to have included not only the three higher Varṇas but also some belonging to the Śūdra Varṇa.[34] This reveals a trend of the cleavage of the Varṇa-divided and caste-ridden society into classes. In this context it may be noted that the Viṣṇu Purāṇa and the Yuga Purāṇa would have us believe that during the period of social disorder, political disturbances and changes brought about by the foreign invaders, the idea of birth as the basis of social rank would tend to recede into the background and wealth or property would emerge as the foremost factor in the determination of social status.[35]

The Arthaśāstra, an earlier text, had in a way recognised the dichotomy of the Varṇa-divided Indian society into Ārya and Dāsa. The Ārya class of freemen included not only the first three Varṇas but also the Śūdras who were deemed as free.[36] Nevertheless, the Dāsas (slaves) were largely recruited from the Śūdra Varṇa. It may be noted here that the Buddhist Assalāyana Sutta had ascribed the division into Ayya (master) and Dāsa (slave) to the social system of the neighbouring peoples—the Yonas (Yavanas) and the Kambojas among whom there was no impassable barrier between the two classes. But the evidence of Arthaśāstra noticed above, reveals the tendency of the emergence of this phenomenon in the Indian context also. However, it has generally been recognised[38] that slavery could never acquire here such a wide extent, developed form and significant role as in Greece and Rome. Nevertheless, during the period extending from C. 600 B.C. upto about the beginning of the Christian Era there is evidence for its wider prevalence as well as the greater subjection of the Śūdras as compared with what we find in later times.[39] It is noteworthy that the division of Indian society into Ajja and Pessa which we get in the

Aṅgavijjā appears to represent the emergent phase of the next stage along with the continuance of the older tendency, for the pessa class included slaves as well as servants, hired labourers and dependent peasants.

On the basis of some provisions of the *Manu Smṛti*, Hopkins[40] has inferred a sort of antagonism between the first two Varṇas, on the one hand, and the last two, on the other. But the evidence of the Aṅgavijjā noticed above reveals that the picture was not so simple. In fact the Indian caste system had an element of camouflage and it acted as an offset against the cleavage of society into clear-cut classes. However, the Milindapañha[41] clearly reveals that the dichotomy of the Varṇa-divided society was broadly and chiefly manifested in the phenomenon of the 'ordinary Vessas' (Vaiśyas) and Śūdras, with agriculture, trade and commerce, and cattle-rearing as their avocations, constituting the plebeian lower strata, and the remaining i.e., the first two Varṇas representing the dominant class which appears to have included the prosperous Vaiśyas also, especially the big traders and merchants. To what extent the distance between the first two Varṇas (major castes) tended to get lessened may easily be inferred from the institution of Brahma-kṣatra noticed above. The trend of roughly approximating the Vaiśyas to the position of the Śūdras had been in operation since earlier times,[42] but it is noticeable to a marked degree during the period under consideration. Obvious as it is, in a society with a predominantly agrarian economy a large section of the Vaiśyas whose enjoined duty was to carry on agriculture, trade and cattle-rearing, had been agriculturists. Their lowering down to the status of the Śūdras, which is clear from the bracketing together[43] of these two castes in the *Milindapañha*, shows the trend of the degradation of peasantry, leading ultimately to their subjection, a phenomenon well-known to have been associated with feudalism. Besides, the Śūdras who in the earlier period were under stricter subjection with service to the higher Varṇas as their sole duty are mentioned in this text as pursuing the occupations of the Vaiśyas, and, as such, a sizable number of them appears to have been transformed into dependent peasants. Though we come across the emergence of a class of dependent peasantry constituted by the lower strata of the Vaiśyas as well as a section of the Śūdras, yet it is not to be forgotten

that those urban Vaiśyas who were traders and merchants, flourished during this age with the development of trade and commerce, especially during the Kuṣāṇa period. We find many examples of rich businessmen giving religious donations. However, there is some evidence to think that the traders were usually held in low esteem by the upper classes.[44]

In fact what we find here is not precisely feudalism but only a tendency working for the emergence of feudalism which, even after acquiring a developed form in later times, was somewhat different[45] from its Western counterpart. It may be noted here that in the light of D.A. Suleikin's periodization of Indian history V.I. Kalyanov[46] placed the birth of feudalism in India during the first to third century A.D. He as well as I.P. Baïkov[47] have seen the traces of feudalism in the Arthaśāstra of Kauṭilya. The exploitation of the two lower Varṇas by the higher ones which has been emphasised in this context as constituting the feudality by Baïkov, may be found even in earlier ages which is quite clear from the evidence of the Brāhmaṇa works.[48] In fact we can hardly find in this text, which appears to belong to an earlier period, any marked traces of the essential feudal relationship in the socio-economic sphere—the subjection and degradation of peasantry who were in personal dependence on the landlord and more or less tied to the land.[49] However, the view of Kalyanov regarding the period of the emergence of feudalism appears to be right in the light of many pieces of contemporary evidence.

Along with the institution of caste, the self-sufficient village has been found to have palyed a major role in the socio-economic, political, and cultural setting of ancient India. A passage in the *Milindapañha* throws light on the changing set-up of village organization and agrarian relationship during the early centuries of the Christian Era :

"Suppose, O King, that in some village the lord of the village were to order the crier, saying: "Go, crier, bring all the villagers quickly before me". And he in obedience to that order were to stand in the midst of the village and were thrice to call out: "Let all the villagers assemble at once in the presence of the lord". And they should assemble in haste and have an announcement made to the lord,

saying: "All the villagers, Sire, have assembled. Do now whatever you require". Now when the lord, O King, is summoning all the heads of houses, he issues his order to all the villagers, but it is not they who assemble in obedience to the order, it is the heads of houses. And the lord is satisfied therewith, knowing that such is the number of villagers. There are many others who do not come—women and men, slave girls and slaves, hired workmen, servants, peasantry, sick people, oxen, buffaloes, sheep, and goats, and dogs—but all those do not count".

The term gāmasāmika[51] meaning the lord of village is significant in this context. Svāmī occurs as a royal title assumed by the kings of Śaka-Kuṣāṇa extraction, which was also adopted by the Sātavāhanas.[52] It has also been surmised that this title is of foreign origin.[53] It has been taken to be the Sanskrit equivalent of the title of Muruṇḍa which appears to have originally been an Indo-Scythian term meaning lord or master[54]. In the inscriptions recording the pious donations of his relatives and ministers the Western Kṣatrapa Nahapāna has been given the title of Rājan, Mahākṣatrapa, Svāmin and Khaharāta or Kṣaharāta[55]. Some Brāhmī inscriptions from Mathurā and its vicinity also have Svāmin as the title of rulers[56]. In some South Indian inscriptions the terms Sāmi and Sāmivāram or Svāmi-bhoga stand for the king and the landlord's share respectively.[57] The authority and prestige which the term Svāmin connoted may easily be inferred from the fact that it began to be suffixed to the names of gods also.[58]

In a Kharoṣṭhī inscription[59] of the year 303 belonging to the Peshawar region a Kṣatrapa has been mentioned as grāmasvāmī whose name Avakhajhaḍa indicates that he was a foreigner. The expression 'maharayasa gāmasamisa' which we get in the record may indicate that the title of Mahārāja was also loosely applied to him. However, N. G. Majumdar, the editor of the inscription, has translated it as 'the Mahārāja's village lord'. This clearly reveals that the Kṣatrapas were lords of villages. But we do not know whether they were assigned to them as fiefs by the kings. The 'gāmasāmika'[60] mentioned in the Milindapañha was, as the term itself indicates, not a Kṣatrapa but a petty village lord holding one or more villages, and the context in which he is mentioned further shows that the phenomenon of such

village lords had become common. Thus we find a marked growth of a rural aristocracy. This class may have been formed by the appearance of new landords as well as the transformation of some powerful village headmen into village lords in times of political disorder due to foreign invasions. The well-known Kālakācāryakathānaka[61] inspite of its fantastic elements also throws light on how the foreign conquering hordes settled as ruling aristocracy in the regions occupied by them. Under the Kuṣāṇa rule the names of the Kṣatrapas, Mahākṣatrapas and Mahādaṇḍanāyakas also appear to be foreign.[62]

It is significant to note that the earlier term *grāmika* meaning village headman also occurs in the inscriptions of the period. Thus we find the mention of grāmika in a Mathurā Jain inscription (Lüders' List, No. 69a) of the time of Vāsudeva, and a Jain votive image inscription (Lüders' List, No. 48) which reveals the hereditary character of this office. The Dura inscription (Agra District, U.P.; E.I. XXXV, pp. 190f) of the time of Kaniṣka (Year 16) also mentions a lady belonging to a family of hereditary village headmen—(gā) mikanām, who dedicated a house. The hereditary village headmen[63] may also have emerged as petty village chiefs. In the Manu Smṛti the grāmika who was to be assigned some land for his services has been given the title *grāmasya adhipati* (Manu VII. 115 f) meaning the lord of a village. This tendency in its developed form may be found in the Kāmasūtra (V. 5.5, 6) of Vātsyāyana, a slightly later text, which reveals how village headmen assumed such powers as to compel village women to work in their fields.

The growth of the class of village lords and village headmen behaving like chiefs, must have led to the decline of the status of peasantry. The evidence of the Milindapañha noticed above shows how in the villages under gāmasāmikas the peasantry had no say in the vital affairs of the village and they were regarded so inferior as to be classed with slaves, servants and hired labourers. An inscription[63a] of the sixth century A.D. reveals the further growth of this tendency. This undoubtedly indicates peasant subjection which is regarded as an essential element of feudalism. In the Manu Smṛti the ārdhikas (sharecroppers) who received half the crop for their labour appear as a sizable

class. They also find mention in some inscriptions[63b] belonging to the third and fourth centuries A.D.

We notice some economic changes during the period which paved the way for the rise of the feudal tendency. The agricultural implements discovered in the excavations conducted at sites like Taxila, Kauśāmbī and Hastināpur throw some light on the changing economy. The true spade used for shovelling purposes, is found to have made its appearance at Taxila as well as in the Roman world about the first century A.D.[64] The hoe and the chisel-headed spud, tended to become broader in blade about this period[65]. The weeding forks (?) and two distinct types of sickles, one with a curved blade and the other with a curved handle and a straight blade date at Taxila from the first century A.D., though they may have been in use from earlier times.[66] A fragmentary sickle discovered at Kauśāmbī with a prominently broad and curved blade has been assigned to the sub-period IV. 19 (C. 95-165 A.D.)[67]. From the point of view of the broadness of blade this appears to show an improvement on the fragmentary sickle discovered at the same site from S.P. IV (50 B.C.–25 A.D.)[68]. In the excavations conducted at the Ghoṣitārāma monastery[69] of Kauśāmbī an almost complete sickle of a smaller variety, having neat curve, has been discovered in the Kuṣāṇa level (1st–2nd century A.D.) Another fragmentary sickle of a more or less similar variety has been found at the same site in the succeeding Magha level which has also yielded an adze. The varieties of the sickle are significant in this context. The fragment of a sickle discovered from a late level of period IV (3rd Cen. A.D.) at Hastināpur[70] also shows a prominently broad blade. The carpenter's adze appears about this period at Taxila with blade relatively broader below and thicker above.[71]

As a matter of fact iron was found abundantly in India.[72] The high quality of Indian iron and steel was famous in the ancient and medieval world. We learn from Periplus that in the first century A.D. they were exported to the Western world.[73] The use of iron here was also common from much earlier times. But during the early centuries of the Christian Era there is some evidence of its extensive use and of the manufacture of some better types of agricultural implements. Some improvement in tools and implements along with the greater use of iron may be inferred from the Aṅgavijjā (pp. 233, 258)

in which we get one of the earliest references to the classification of the metal—Loha, Kālaloha, Vaṭṭaloha, Kaṁsaloha, Tikkhaloha and Muṇḍaloha[74]. Some varieties of soil and many kinds of grains are also mentioned in this text[75]. We get references to ironmongers (lohavāṇija[76] and lohavāṇiyiya)[77] in the inscriptions of the Kuṣāṇa age recovered from Western India and Mathurā.

With better types of tools and implements it became easier to improve agriculture, clear the forests and bring more areas under cultivation. The Milindapañha (IV. 1. 41) conceived of 'the jungles turned into open country'. It further speaks of the individual making a land fit for cultivation by clearing the forest and becoming thus the owner thereof (Trenckner's edition, p. 219). Unlike the Mauryan period we do not find state efforts at the extension of the area of cultivation during this period. Manu (X. 44) also laid down that the field belonged to him who cleared away the timber.

The comparatively expanding and improving economy with scope for individual enterprise must have paved the way for the emergence of the circumstances under which not only the force but also the utility of the old rigorous type of subjection of the Śūdras whose duty was to serve others may have been weakened. Instead, they may have been given land for subsistence as dependent peasants which is clearly reflected in the increase of the class of Śūdra share-croppers (ārdhika).[78] In Manu who mainly tried to defend the old order we find unmistakable traces of its weakening[79] and the tendency becomes more marked in Yājñavalkya Smṛti[80] (C. 100—300 A.D.). Another significant aspect of the expanding economy during the Kuṣāṇa period was the development of trade and commerce and the greater prevalence of money economy. But it has been rightly suggested[81] that money economy was mainly confined to cities and its suburbs and it was more or less the natural economy which prevailed in the villages.

The connection between particular socio-economic formations and political systems, on the one hand, and the religious cults, sects and myths that seem to accompany them, on the other, is sometimes found to be obscure. But the cult of Kubera and his associates was so widespread and close to the life of the masses that one feels tempted to pur-

sue on the mythology which grew up around him with a view to ascertaining whether and how far it reflects changes in the social background. The strong attraction of the Kuṣāṇas for Kubera—Pāñcika, a deity having a wide range of functions has been noticed in the imagery of the Kuṣāṇa art. In the giant statue from Takal near Peshawar we find the representation of Kubera-Pāñcika sitting regally upon a throne, which has been regarded as an excellent specimen of Gandhāra art[82]. The deity holds a spear in his left hand. Among the donors there is an Indo-Scythian holding flowers depicted on the pedestal. Other representations of the figure of the deity having Indo-Scythian donors have also been noticed[83]. In the group found at Pālikherā near Mathurā the Kuṣāṇas are shown as the devotees of Kubera—Pāñcika[84]. Their association with the cult of Kubera-Vaiśravaṇa may also be inferred from the fact that the Mahāmāyurī, a collection of the geographical and astrological lore, belonging to the third century of the Christian Era, calls Vaiśravaṇa the guardian of the Tukkhāras[85]. It is further revealed from the accounts of Hiuen Tsang who has reported a figure of the king of spirits at Kapiśā, of Vaiśravaṇa in front of monastery at Balkh, and a special temple of the same deity at Khotan[86]. The Mahāmāyurī reveals that the worship of Yakṣas[86a], the associates of Kubera, was common over a large part of the Kuṣāṇa empire in which Buddhism represented one of the higher forms of religion[87]. In fact it was prevalent among the masses from Iran and Afghanistan upto Siṁhala[88] and almost all over India. It was a very old and popular cult and was later on incorporated to some extent in Buddhism, Jainism and Hinduism.

According to one mythological tradition, Pāñcika was the general of the army of Yakṣas and Kubera-Vaiśravaṇa was their king. But in Mahāyāna Buddhism Pāñcika was the name of Kubera himself and Hārīti was his wife[89]. The worship of the pair Hārīti and Kubera-Pāñcika was common in the Buddhist sanctuaries not only in India but also in Gandhāra and central Asia[90]. A specimen of the representation of the pair in a classical guise is available from Kauśāmbī[91] also (Pl. XXVIII). The popularity of Kubera may perhaps be further evidenced from the fact that the figure of this deity seems to appear on a local imitation of Roman bulla at Kauśāmbī (Pl. XX. B). This

figure may be compared with that of Kubera published in Indian Mythology (p. 84) by Veronica Ions. It may be noted that the worship of the Yakṣas, Hārīti and Kubera—Pāñcika or Kubera Vaiśravaṇa was regarded as a lower form of religion, as it was meant only for secular welfare. The deities belonging to this group have not been noticed on the Kuṣāṇa coins. However, a type of the pair Hārīti and Kubera-Pāñcika can be closely correlated with PHARRO and ARDOXSHO occurring on the coins of the Kuṣāṇa kings[92].

In the Ṛgveda and other Vedic texts the Yakṣas are sometimes viewed as strange or wonderful beings[93]. However, in the Atharvavēda Kubera and his son are regarded as belonging to a different religious fold.[94] In fact the cult of Kubera appears to have been pre-Aryan and aboriginal in its origin. On the whole, he was conceived in the Vedic period as the chief of the evil beings who were supposed to live in the abode of shadow and darkness[95]. In the Śatapatha Brāhmaṇa Kubera-Vaiśravaṇa is called the king of the Rākṣasas[96]. He became a popular folk deity during the post-Vedic period. The Arthaśāstra of Kauṭilya[97] refers to the temples and abodes of about nine deities including Vaiśravaṇa in the centre of the capital city. In connection with some compounds of divine names the Mahābhāṣya refers to Śiva-Vaiśravaṇa[98]. Vaiśravaṇa is mentioned prominently in the Aṅgavijjā also.

The developed myth of Kubera-Vaiśravaṇa represents a fusion of many diverse elements. In the popular mythology, however, he is connected with fertility, mainly associated with the earth, the mountains and the treasures of the precious stones and metals underground[99]. The usual epithet of Kubera which we find in the Rāmāyaṇa and the Mahābhārata was *naravāhana*[100]. In the Dīghanikāya (III, 200) the Uttarakurus whose sovereign Kubera was conceived, are mentioned as using men, women and young boys as *vāhana*. This epithet of the deity occurs in the Paramatthajotikā commentary to the Sutta-nipāta (p. 370). *Naravāhana* literally means that the vehicle of the deity consisted of human beings[101]. In the Bhārhut art we find the representations of many Yakṣas. One figure is labelled as 'kuprio Yakho'—the Yakṣa Kupriya (Kubera). Here the deity is represented on a pillar (now in the Indian Museum, Calcutta) with folded hands on a dwarf

supporting him on his hands and feet. The humble, devoutly smiling man who is the bearer of the deity has abnormally long ears[102]. Zimmer has noticed another representation of a Yakṣa queen supported by a male Yakṣa kneeling and holding her up with his two arms[103].

It is significant to notice in this context that the depiction of a god bearing a mace and a thunder-bolt in his right and left hands respectively, and supported by two men has been discovered in a rock carving dating from the 14th century B.C. at the Hittite sanctuary of Yazilikaya near Bogazköy in modern Turkey[104]. It has been pointed out that the conception of the *vāhana* of deities was borrowed from Mesopotamia.

In the Milindapañha, the psychology of a Yakṣa appearing before Vaiśravaṇa after committing a crime against the latter has been viewed in the context of a number of imageries connoting control, domination and subjection[105]. It appears that the concept of the *naravāhana* aspect of Kubera reflects a phase of human domination and subjection which may have had its basis originally in racial and tribal subjugation, and then in class domination corresponding to the stage of slavery. The former probability emerges on the basis of the consideration of the abode of Yakṣas in the Northern mountainous regions which were inhabited by several aborignal tribes. The association of Kubera with wealth and property may have something to do with the socio-economic background of slavery,[106] or at least a social situation roughly corresponding to it, connected with the emergence of private property, surplus product and exploitation. This also implies the idea of the dependence of people on Kubera for obtaining material benefits. In this context we may notice the marked ugliness and deformity,[107] such as the big belly, associated with his person in mythology and also in art. It is also stated that he was a thief[108] in his former life who was born as a god of wealth due to certain religious merits earned by him. But this kind of attitude may have been partly due to the non-Aryan origin of the deity. It has also to be borne in mind that we find some other attributes of the deity which may not fit in with this aspect.

The foregoing discussion may indicate that the worship of Kubera-Vaiśravaṇa and his associates was originally and mainly prevalent among the common masses. In some images he is represented as a

typical merchant holding a purse which reveals that he was accepted by the merchant community as well. He was also conceived as the epitome of royalty and paramountcy.

In the Indian context we do not find that extent and rigour of slavery which was prevalent in ancient Greece and Rome. Slavery here was never a major factor in the system of production and, as such, some Marxist specialists have gone to the extent of postulating that the stage of slavery was bypassed here[109]. However, it can not be gainsaid that, as compared with the state of affairs in later times, the Dharmasūtras and the Manusmṛti envisage greater and more intense subjection of the Śūdras, though the latter also foreshadows at the same time some change of attitude in this respect[110]. The change becomes somewhat manifest in the Yājñavaklya Smṛti (II. 182) which introduces a revolutionary principle that nobody can be reduced to slavery without his consent. The myth of Kubera-Vaiśravaṇa also undergoes a modification in so far as the deity in Kuṣāṇa art is invariably represented as seated on a throne or some raised platform and the *naravāhana* aspect of the earlier age which we find in the Bhārhut art tends to disappear. This may be said to be partly due to variation in art tradition, but the point at issue is that in the Indian art tradition as a whole this attribute of the deity began to be dropped. This concept lingered on in some texts of the later period like the Bṛhatsaṁhitā[111] and the Matsya Purāṇa[112]. But the latter conceives of meṣa (ram) as the *vāhana* of Kubera alternatively with *narayukta-vimāna.* The Rūpamaṇḍana,[113] a medieval text on iconography has conceived of elephant as the *vāhana* of the deity. In the Viṣṇudharmottara,[114] we find an attempt of ascribing quite a different meaning to the term *naravāhana* by interpreting 'nara' as rājya (state); Kubera is in this way conceived as the presiding deity of rājya (state).

The change in the art tradition during the Kuṣāṇa period and also onwards may be taken to reflect the loosening of the bonds of the earlier type of stricter subjection, not identical with but only corresponding to slavery to some extent, under the stress of the changing socio-economic conditions and the foreign invasions.[114a] We have already seen how we get the evidence of the milder type of servitude i.e. peasant subjection during this period, which constitutes the essential element of

feudalism. It is during the Kuṣāṇa period that we notice the phenomenal spread of the new ideology of Mahāyāna Buddhism laying the highest stress on compassion, universal friendliness, liberality and humanitarianism, which also points to significant changes in the social being and social consciousness.

The mechanism of the Śaka-Kuṣāṇa government is largely unknown. However, the decentralized, feudatory[115] character of the Kuṣāṇa political structure is in accordance with the consensus of opinion among scholars, which may be inferred from the usual titles[116] of kings—mahārāja (the great king) and rājātirāja (the supreme king of kings). The titles mahādaṇḍanāyaka and daṇḍanāyaka have also been taken to denote feudatory chiefs[117] for which, however, there is no positive evidence. There are some who even now see the growth of a strong centralized state in the Kuṣāṇa concept of kingship[118]. Inspite of the adoption of the title Kaïser[119] by Kaniṣka, the Kuṣāṇas do not appear to have been influenced by the Roman system of provincial government. The titles of mahākṣatrapa and kṣatrapa were given to governors. But the epithet mahārāja[119a] applied to a kṣatrapa indicates that he was part not so much of a centralised bureaucratic machinery as of a feudatory structure. The Mathurā Brāhmī Inscription of the year 28 reveals that one Kanasarukamānaputra Kharasaterapati Vakanapati owed allegiance to Devaputra Sāhi Huviṣka (Sten Konow, E.I. XXI, pp. 58 ff.). The former, thus, appears to have been the vassal of the latter. In fact, the governmental structure of the Kuṣāṇas can be said to be neither purely bureaucratic nor altogether feudal, but something like an admixture of both the elements. The evidence of inscriptions and coins on this point is too scanty to arrive at any definite conclusion. However, we can know a bit more about the nature of the political structure of the age from some attributes given to Kubera, who, as we have already seen, was one of the most popular deities at that time. Kubera who appears to have been called only mahārāja (the great king) in the Aṣṭādhyāyī[120] of Pāṇini (middle of the fifth century B.C.) came to be known during this period as rājarāja[121] (the king of kings), a title given to the deity in the Buddhacarita[122] of Aśvaghoṣa who is generally associated with Kaniṣka, in the Rāmāyaṇa and the Mahābhārāta, and also in the Meghadūta[123] of Kālidāsa. He is generally viewed as the overlord of the Yakṣas. In the

Saddharma—Puṇḍarīka, a text of Mahāyāna Buddhism, Kubera-Vaiśravaṇa,[124] the ruler of a cardinal point is conceived as having thirty three thousand gods in his train. A verse in the Raghuvaṁśa of Kālidāsa[125] reveals how only Kubera among all the deities was conceived as especially associated with the Sāmanta system or the institution of vassalage. It may be noted that the word Sāmanta which occurs in the Arthaśāstra of Kauṭilya[126] in the sense of a neighbouring ruler may be found to have been used for the first time in the sense of vassal in the Buddha-carita of Aśvaghoṣa, and later on the term in this sense became so common as to emerge as the key-word of Indian feudalism. A verse in this work sets the kings accompanied by their sāmantas alongside the bhūdevas (Brāhmaṇas) accompanied by their bāndhavas (kinsmen)[127]. Here we may see the rudiments of a sort of kinship loyalty characterising the relationship of the vassals to their overlord, a feature which is found in the developed[127a] Indian feudal set-up as well.

The deification of the Kuṣāṇa kings is a well-known fact. They are called 'Son of God' (devaputra in the Mathurā inscriptions, begopouro at Surkh Kotal), and 'God King' (begoshao at Surkh Kotal)[128]. Even before the rise of the Kuṣāṇas the idea of royal divinity was wide spread in China, Iran and Western Asia, and among the Romans. The practice of setting up *devakula*[129] in which royal statues were kept signified the cult[130] of the dead king, and it was mainly introduced by the Kuṣāṇas in India, though it may have been prevalent in some regions here even before[131]. The idea of the divinity of the king acquired for the first time a finished form in the Indian tradition in the Manusmṛti (C. 200 B.C.—200 A.D.) which was largely due to the foreign impact. However, it is obvious that the apotheosis of the Kuṣāṇa kings had no serious religious purpose behind it. It was mainly an instrument of legitimation and a device to prop up imperial unity and ensure the allegiance of the subjects and feudatories. The deification of royalty was matched by an attempt at the excessive royalization of the popular divinity Kubera—Vaiśravaṇa who in literature and also in some images has been represented as the epitome of royalty signifying the sublimation of paramountcy and royal majesty. In this context the concept of Kubera as the presiding deity of rājya (state) in a later text which we have noticed before, may also appear to be significant.

NOTES

1. *Vāyu* (chap. 58), *Brahmāṇḍa* (II. 31), *Matsya* (Chap. 114), *Viṣṇu* (VI. I) etc. Hazra, *Purāṇic Records on Hindu Rites and Customs,* (Dacca, 1940), pt. II, Chap. I.

2. Hazra, op. cit., pp. 174 ff, chapters I & II.

3. Hazra, loc. cit; see also S. N. Roy, *Paurāṇika Dharma Evaṁ Samāja* (Pañcanada Publications, Allahabad, 1968).

4. V. S. Agrawala, Int. to *Aṅgavijjā* (Prakrit Text Series, Varanasi, Vol. I, 1957), p. 94. The work was, however, retouched during the Gupta period (V. S. Agrawala, loc. cit.). See also Louis Renou, *Journal Asiatique,* Vol. CCXLVI (1958), p. 100.

5. *Aṅgavijjā,* p. 102.

6. Ibid, pp. 102 f.

7. P. V. Kane, *History of Dharmaśāstra,* Vol. II, pt. I, Chronological Table, p. XI.

8. *Sutta Nipāta,* p. 122; Fick, *The Social Organization of North East India in Buddha's Time* (Calcutta, 1920), pp. 221f; B. C. Law, *India As Depicted In Early Texts of Buddhism and Jainism,* pp. 150 f.

9. Infra.

10. *Manusmṛti,* X. 43-44.

11. Lüders' List No. 994; E.I. XX, p. 4.

12. Fleet, *Corpus Inscriptionum Indicarum,* Vol. III, Insc. No. 1.

13. Cf. N. R. Ray in the *Age of Imperial Unity,* p. 533.

14. Ibid.

15. *Archaeological Survey of India, Annual Report,* 1911-12, p. 75, Pl. XXIII.

16. G. R. Sharma, *Memoirs of the Archaeological Survey of India,* No. 74; Chap. VI.

17. N. R. Ray, loc. cit.

18. D. Sharma, ed., *Rajasthān through the Ages,* Vol. I, (Rajasthan State Archives, Bikaner, 1966), pp. 56 f.

19. See the paper 'Śaka-Kuṣāṇas in the Central Gaṅgā Valley' in this volume. The Iranian Maga priests also began to emerge as factor in the social and religious life of India. (V. C. Srivastava, '*Sun Worship in Ancient India,*' thesis approved by the University of Allahabad for the D. Phil. degree, 1968, Chap. X).

20. Devapārā Praśasti, E. I. Vol. I, p. 30; E. I. Vol. XII, pp. 10 ff; Cf. B. P. Majumdar, *Socio-economic History of Northern India,* p. 83.

21. D. C. Sircar, *Indian Epigraphic Glossary,* p. 61.

22. R. C. Majumdar, *Champā (Inscriptions)*, pp. 10, 45.

23. D. C. Sircar, loc. cit.

24. E.I., Vol. I, pp. 118 f; N. K. Dutta, *Origin and Growth of Caste in India,* Vol. II, (Calcutta, 1965), p. 77.

25. D. C. Sircar, op. cit.

26. *Aṅgavijjā,* p. 149, lines 9 ff.

27. Ghurye, *Caste and Class in India,* p. 46.

28 & 29. Ghurye, ibid, p. 55.

30. P. V. Kane, *History of Dharmaśāstra,* Vol. II, pt. I, p. 383.

31. As against this the Yavanas and Śakas also were regarded as Śūdras in the *Mahābhāṣya* (2nd Cent. B.C.). But in the *Arthaśatra* the Śūdras were distinguished from the Mlecchas. (R. P. Kangle, *Kauṭilīya Arthaśāstra*, pt. III, p. 144). A separate translation of the *Āśvalāyana Sūtra* has 'in the country of the Yüeh–Chih' instead of 'Yona-Kumbojesu' in the Pali (*Majjhima,* loc. cit.). John Brough, *Bulletin of the School of Oriental and African Studies,* University of London, Vol., XXVIII (1965), p. 586. This piece of evidence may indicate that the Yüeh-Chih also had a slave-owning system which was viewed as different from the fourfold division of Indian society.

32. Cf. R. S. Sharma, *Śūdras in Ancient India,* (Varanasi, 1958), p. 215.

33. *Tattha maṇusse.....ajjo pesso ti pubbamādhārayitavvaṁ bhavati.....*
Aṅgavijjā p. 218, line 23.

34. *Ajjagate .... baṁbhaṇo Khattio Vesso Suddo tti ....* Ibid, p. 218, lines 25 f. For the various connotations of the term pessa see also *Pāia-Sadda Mahaṇṇavo.* (Prakrit Text Society, Varanasi, 1963), p. 615.

35. *Tataścārtha evābhijanahetuḥ .....*
Viṣṇu. IV. 24. 21 ff.

Also *Yuga Purāṇa,* 95–112.

36. *Arthaśāstra,* III. 13.

37. *Ayyo hutvā dāso hoti, dāso hutvā Ayyo hoti, Majjhima Nikāya,* II, p. 149; B. C. Law Op. Cit. pp. 141 f.

38. Cf. D. D. Kosambi. *The Culture and Civilization of Ancient India,* (Routledge and Kegan Paul, London–1965), p. 24.

39. R. S. Sharma, op. cit., pp. 139, 174, 214.

40. E. W. Hopkins, *The Mutual Relations of the Four Castes according to the Mānavadharamaśāstram,* (Leipzig, 1881), p. 78.

41. *Milindapañha,* IV. 3. 26; Rhys Davids, tr. *'The Questions of King Milinda',* p. 247.

42. R. S. Sharma, ibid; p. 140, A. L. Basham, *Studies in Indian History and Culture,* pp. 162 ff.

43.,*Milindapañha,* IV. 3. 26.

44. Cf. A. L. Basham, loc. cit.

45. R. S. Sharma, *Indian Feudalism, University of Calcutta,* 1965. See also B. N. S. Yadava in *Land System and Feudalism in Ancient India,* ed. D. C. Sircar, Calcutta, 1966, pp. 63 ff.

46. *'Dating the Arthaśāstra'* in Papers presented by the Soviet Delegation at the Twenty Third International Congress of Orientalists, Indian Studies (Moscow, 1954), pp. 52, 45; (vide Kangle, *Kauṭilīya Arthaśāstra,* pt. III, p. 186 fn.).

47. *'Arthashastra-Pamyatnik bolshoï istoricheskoï tsennosti,'* article appended to the Russian translation of the *Arthaśāstra* (pp. 540–44). (Vide Kangle, *Kauṭilīya Arthaśastra,* part III, p. 188 fn.).

48. Cf. D. D. Kosambi, Annals of the Bhandarkar Oriental Research Institute, 31 (1950), p. 263.

49. Lenin, *Selected works,* Eng. ed., Moscow 1934, Vol. I, pp. 243 f; Marc Bloch, *Feudal Society,* p. 446. For discussion of the various definitions of feudalism see J. W. Hill, *Comparative Studies in Society and History,* Oct., 1962, pp. 31 f.

50. *The Questions of King Milinda,* tr. Rhys Davids, pp. 208 f.

51. *Milindapañha,* p. 147.

52. D. C. Sircar, *Indian Epigraphic Glossary,* p. 330.

53. Ibid.

54. Cf. John M. Rosenfield, *The Dynastic Arts of the Kushans* (University of California Press, Berkeley and Los Angles, 1967), pp. 51, 131.

55. Ibid. p. 131.

56. E. I. XXIV, Insc. No. 27.

57. D. C. Sircar, loc. cit.

58. e.g., E. I. XXXV, pp. 35 f.

59. E. I., XXIV, p. 10.

60. Supra.

61. *Kālakācārya-Kathānaka,* Edited by Jacobi, Z. D. M. G., 1880 pp. 247 ff; Summary by Sten konow, C. I. I., Vol. II, pt. I, pp. XXXVI–XXVIII.

62. B. N. Puri, *India under the Kuṣāṇas,* p. 84.

63. It may be noted that the Jātakas which look back to an earlier period do not testify to the hereditary office of the Village headman. See A. N. Bose, *Social and Rural Economy of Northern India* (600 B.C.–200 A.D.), p. 63; Dr. Altekar had already surmised the hereditary character of this office during the period under our consideration, see '*A History of Village Communities in Western India,*' p. XVI.

63a. *Varṣāsu svaviṣayāt bij-ārtham-āgataka-karṣakāḥ svāminā na grāhyāḥ.* (E. I. XXX, p. 173).

This portion of the charter (592 A.D.) of a king of Gujrat-Kathiawar region calling upon the svāmins or landlords not to seize, obviously for their own work, the peasants coming out of their areas for purchasing or sowing seeds during the rainy season may show the extent of authority assumed and exercised by them over peasantry.

63b. L. Gopal, *Journal of the Economic and Social History of the Orient,* VI, iii, 1963, p. 306.

64. Marshall, *Taxila,* Vol. II, pp. 559 ff; Vol. III, Pl. 169.

65. Ibid.

66. Ibid, pp. 560 f; Vol. III, Plate 169.

67. G. R. Sharma, *Excavations at Kauśāmbī,* 1957–59 (Allahabad, 1960), pp. 22, 56; Pl. 43, 39.

68. G. R. Sharma, *Memoirs of the Archaeological Survey of India,* No. 74, p. 103, Pl. LXV, No. 4.

69. The antiquities are lodged in the Kauśāmbī Museum of Allahabad University.

70. B. K. Thapar, in *Ancient India* Nos. 10–11; Fig. 32, No. 33.

71. Marshall, ibid, Vol. II, p. 552; Vol. III, Pl. 166.

72. Marshall, ibid, Vol. II, p. 534.

73. Cf. Marshall, loc. cit.

74. In the *Rasaratnasamuccaya* (Sls. 134–137) a later work (13th cen. A. D.) the terms *manda* and *tīkṣṇa* are used for cast iron and steel respectively,

and *kālalauha* is mentioned as a variety of the latter. For iron and steel in later period see P. C. Ray, *A History of Hindu Chemistry*, Vol. I, p. 156; B. P. Majumdar, *Indian Culture*, Vol. XVI No. 1.

75. *Aṅgavijjā*, pp. 66, 164, 165, 178, 220.

76. E. I. Vol. X—Lüders' list No. 29.

77. Ibid, No. 1055.

78. *Manu Smṛti* IV. 253; The term *ardhasītika* occurs in the *Arthaśāstra* (II. 23) of Kauṭilya. It has rightly been pointed out that in the *Manusmṛti* the sharecropper receives the land not from the state as in the *Arthaśāstra*, but from the individual.* Manu (IV. 253) and Yājñavalkya (I. 166) lay down rules of social intercourse between the members of the higher castes and the Śūdra ārdhikas, which testifies to the growth of this class.

79. See R. S. Sharma, *Śūdras in Ancient India*, Chap. VI.

80. Ibid, Chap. VII.

81. R. S. Sharma, *Light on Early Indian Society and Economy*, (Manaktalas, Bombay), 1966, p. 78.

82. Rosenfield, *The Dynastic Arts of the Kushans*, p. 245, Fig. 62.

83. Rosenfield, loc. cit.

84. Ibid, Fig. 47.

85. Levi, '*Le Catalogue des yakṣa dans la Mahāmayūrī*' in Journal Asiatique, 1915, pp. 19—138, verses 78, 85—96; V. S. Agrawala, *Bhāratīya Lokadharma* (Varanasi, 1964), p. 127; Rosenfield, op. cit., p. 246.

86. Beal, *Life of Hiuen* Tsang, Trans. p. 45, 59; Rosenfield, op. cit; p. 249.

86a. See also A. K. Coomaraswamy, *Yakṣas*, Parts I and II.

87 & 88. V. S. Agrawala, op. cit; p. 128; *Journal of the U. P. Historical Society*, Vol. XV, Pt. II, pp. 27, 29.

89. V. S. Agrawala, ibid, p. 129.

90. Ibid.

91. G. R. Sharma, M. A. S. I., No. 74, p. 76, Pl. XLIX A.

92. Rosenfield, op. cit., pp. 246 f.

93. V. S. Agrawala, op. cit. p. 120.

94. Ibid, p. 122.

95. Cf. Veronica Ions, *Indian Mythology*, p. 84.

96. *Śatapatha Brāhmaṇa*, tr. Eggeling, Vol. V, p. 367.

97. *Arthaśāstra*, II, 4. 17.

98. Com. On Vārttika No. 2–On Pāṇini's Sūtra VI. 3. 26.

99. Zimmer; *Myths and Symbols in Indian Art and Civilization*, p. 70.

100. Hopkins, *Epic Mythology*, (Strassburg, 1915), pp. 142, 145.

101. Heinrich, Zimmer, *The Art of Indian Asia*, Vol. I, p. 44. Hopkins (*Epic Mythology*, p. 142) thinks that *nara* may stand for spirits (*naras*, Cf. *kinnaras*) or for men.

102. *Corpus Inscriptionum Indicarum*, Vol. II, pt. II, p. 73, Pl. XXIX.

103. *The Art of Indian Asia*, Vol. I, p. 44, Pl. 33 left (Vol. II). See also *A comprehensive History of India*, ed. K. A. N. Sastri, Orient Longmans, pl. XVI.

104. Zimmer, op. cit., pp. 42 f.

105. ...like a frog pursued by a serpent, or a deer by a panther, like a snake in the hands of a snake-charmer, ...like the moon when it is seized by Rāhu, like a snake caught in a basket, or a bird in a cage, or a fish in net .... etc. (*The Questions of King Milinda*, p. 38).

106. For the various form and shades of slavery see the section on slavery in the *Encyclopaedia of Religion and Ethics;* also *An Outline of Social Development*, pt. I–*Pre-Capitalist Society*, (Progressive Publishers, Moscow).

107. e.g., Hopkins, *Epic Mythology*, pp. 142, 143.

108. Veronica Ions, *Indian Mythology* (London, 1967), p. 84.

109. D. D. Kosambi, op. cit., p. 24; Maurice Godelier on the Asiatic Mode of Production in Marx and Engels, Enquiry, New Series, Vol. II, No. 3, 1965, pp. 76 ff.

110. See above.

111 & 112. B. C. Bhattacharya, *Indian Images;* pt. I, p. 29 fn.

113. Gopinath Rao, *Elements of Hindu Iconography*, Vol. II, Pt. II, p. 537.

114. *Viṣnudharmottara Purāṇa*, III. 53. 11.

114a. For the general effect of foreign invasions on slavery see the section on slavery in the *Encyclopaedia of Religion and Ethics.*

115. R. S. Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, 1959, Chap. XII.

116. These titles were, however, derived from pre-Kuṣāṇa traditions. Sten Konow, C. I. I., Vol. II, Pt. I, p. xxviii. For mahārāja rājātirāja as the Parthian title which was imitated by Maues see also Lohuizen-de Leeuw, '*The Scythian Period*,' p. 340.

117. Cf. B. N. Puri, *India under the Kuṣāṇas* (Bombay, 1965), p. 84; After a thorough analysis, U. N. Ghoshal has opined that the term *mahādaṇḍanāyaka* means commander-in-chief (*Indian Historiography and Other Essays*, p. 179).

118. Rosenfield, op. cit., p. 205.

119. D. C. Sircar, *Select inscriptions*, p. 149.

119a. Supra.

120. V. S. Agrawala, *Prācīna Bhāratīya Lokadharma*, pp. 122 f.

121. Rājarāja was also the title of the Parthian Sapedanes, Marshall, *Taxila*, Vol. II, p. 776.

122. *Buddhacarita*, XXVII. 14.

123. *Meghadūta*. I. 3.

124. *Saddharma-Puṇḍarīka* (S. B. E.), p. 4.

125. *Raghuvaṁśa*. V. 28.

126. e.g., Kangle, *Kauṭilīya Arthaśāstra*, Part III.

127. Rājānaḥ saha sāmantaiḥ bhūdevāḥ saha bāndhavaiḥ. Prajjāśca ketubhi ramyāñchubhrānstūpānapūpujan. *Buddhacarita*, XXVIII. 58.

127a. Cf. D. Sharma, ed., *Rājasthān Through the Ages*, p. 339; for the tendency of imposing a quasi-domestic loyalty on the vassals by the overlords in Medieval Europe, see Marc Bloch, *Feudal Society*, pp. 232, 233, 236.

128. Cf. Rosenfield, *The Dynastic Arts of the Kushans*, p. 202.

129. For the Mathurā inscription of Huviṣka alluding to the repair of the *devakula* of his grandfather see Journal of the Royal Asiatic Society, 1924, p. 402.

130. Cf. R. S. Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, pp. 178 f.

131. *Mahāparinibbāna Sutta* in Sacred Books of the East, Vol. XI. pp. 93 f.

PLATE 1—General View of Kauśāmbī

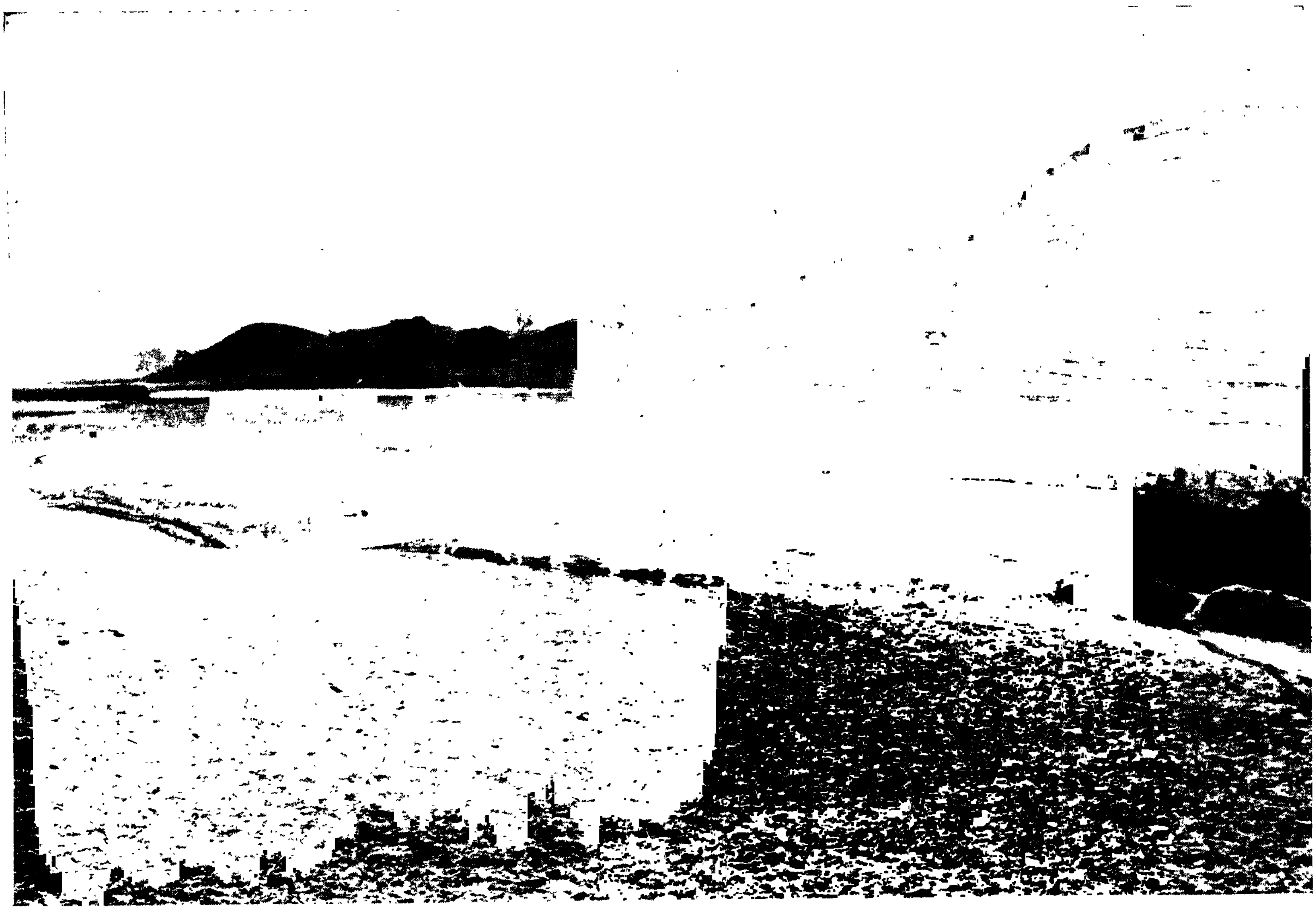


PLATE II—General view of Kauśāmbī

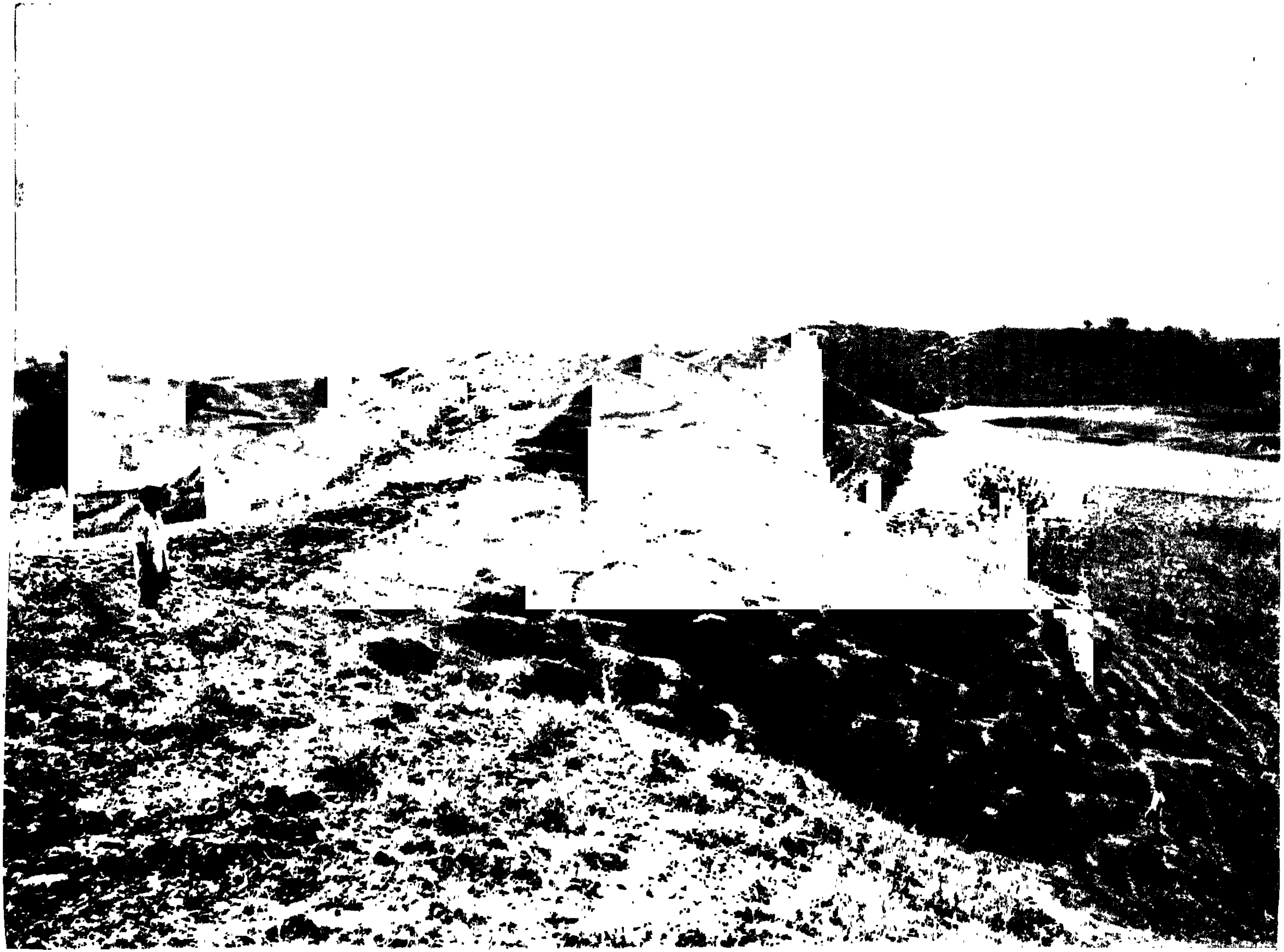


PLATE III—General View of the Revetments of the Defences at Kauśāmbī

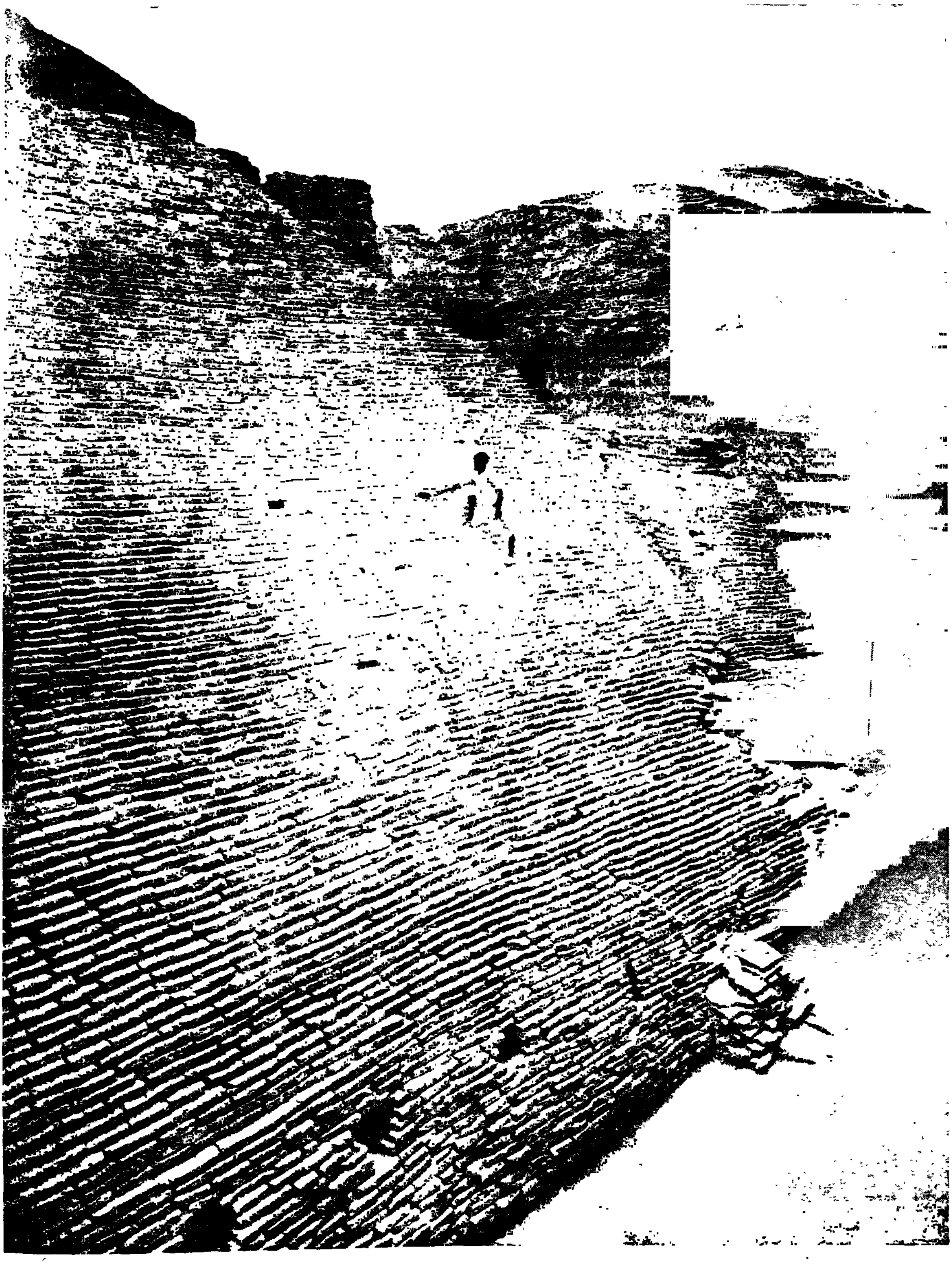


PLATE IV—Existing Circular Tower on the Yamuna

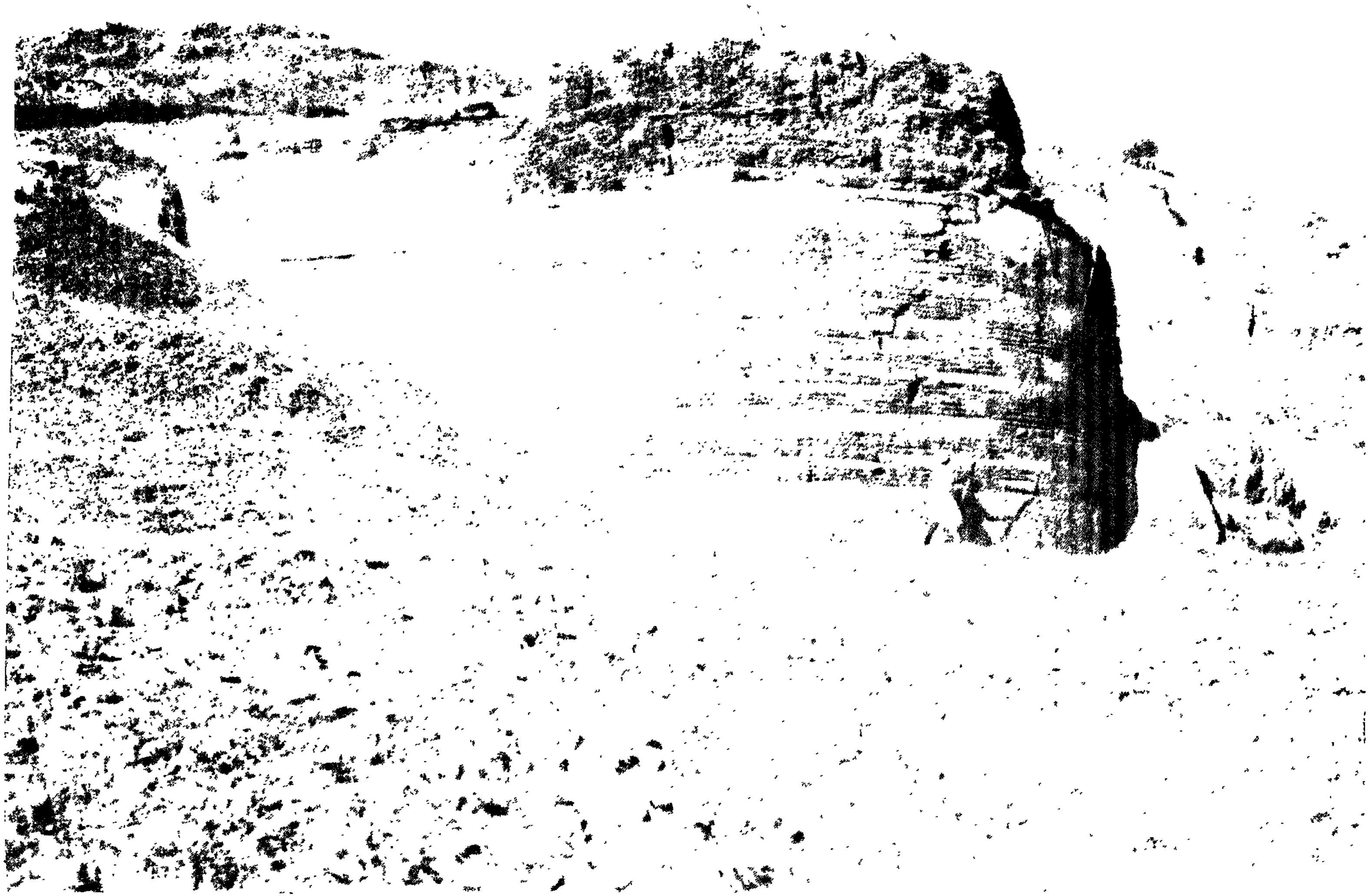


PLATE V—The Northern Stone boundary wall with rectangular tower

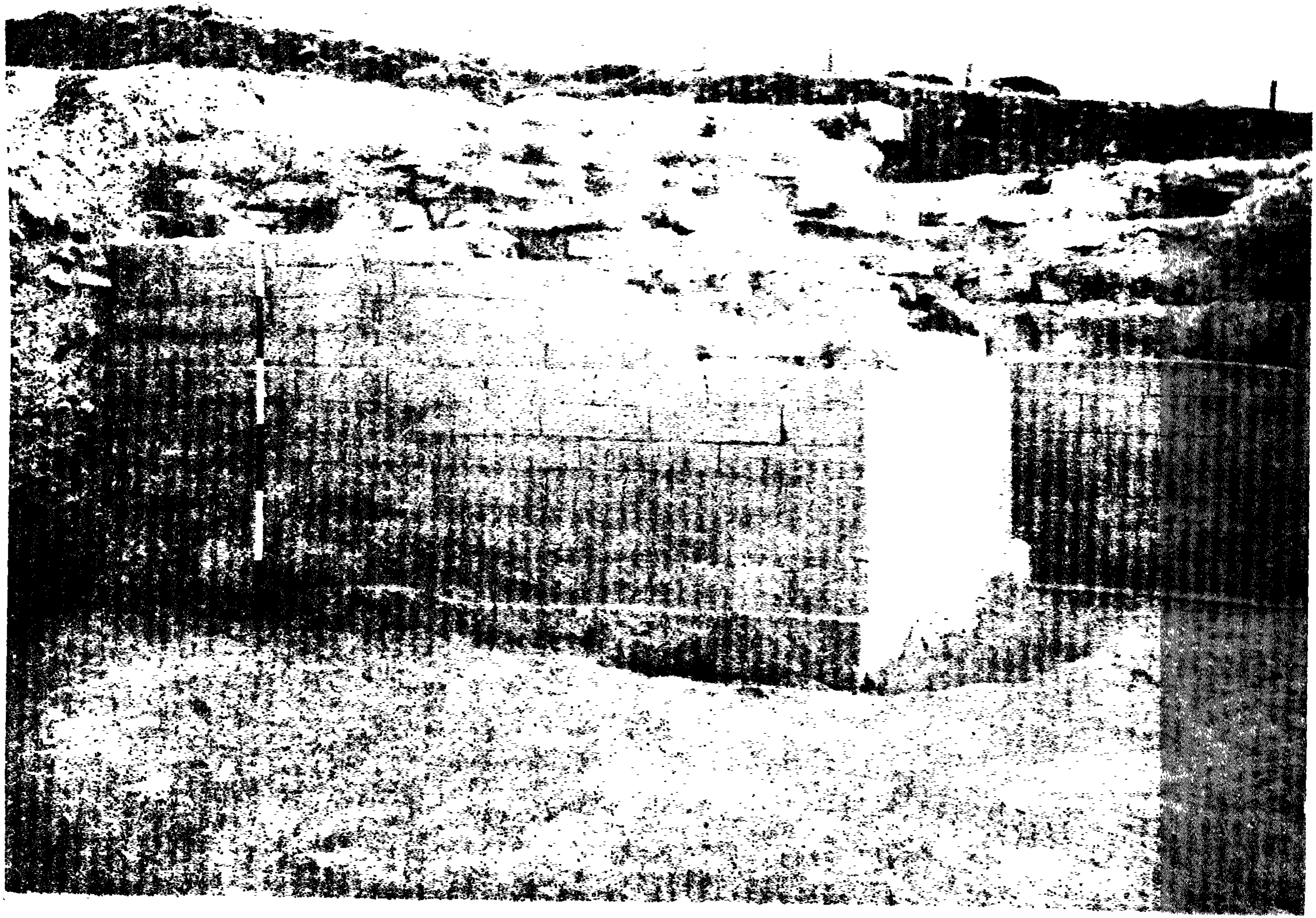


Plate VI—The North-Eastern tower with brick-extension



PLATE VII—The North-Eastern Tower showing the use of Plaster

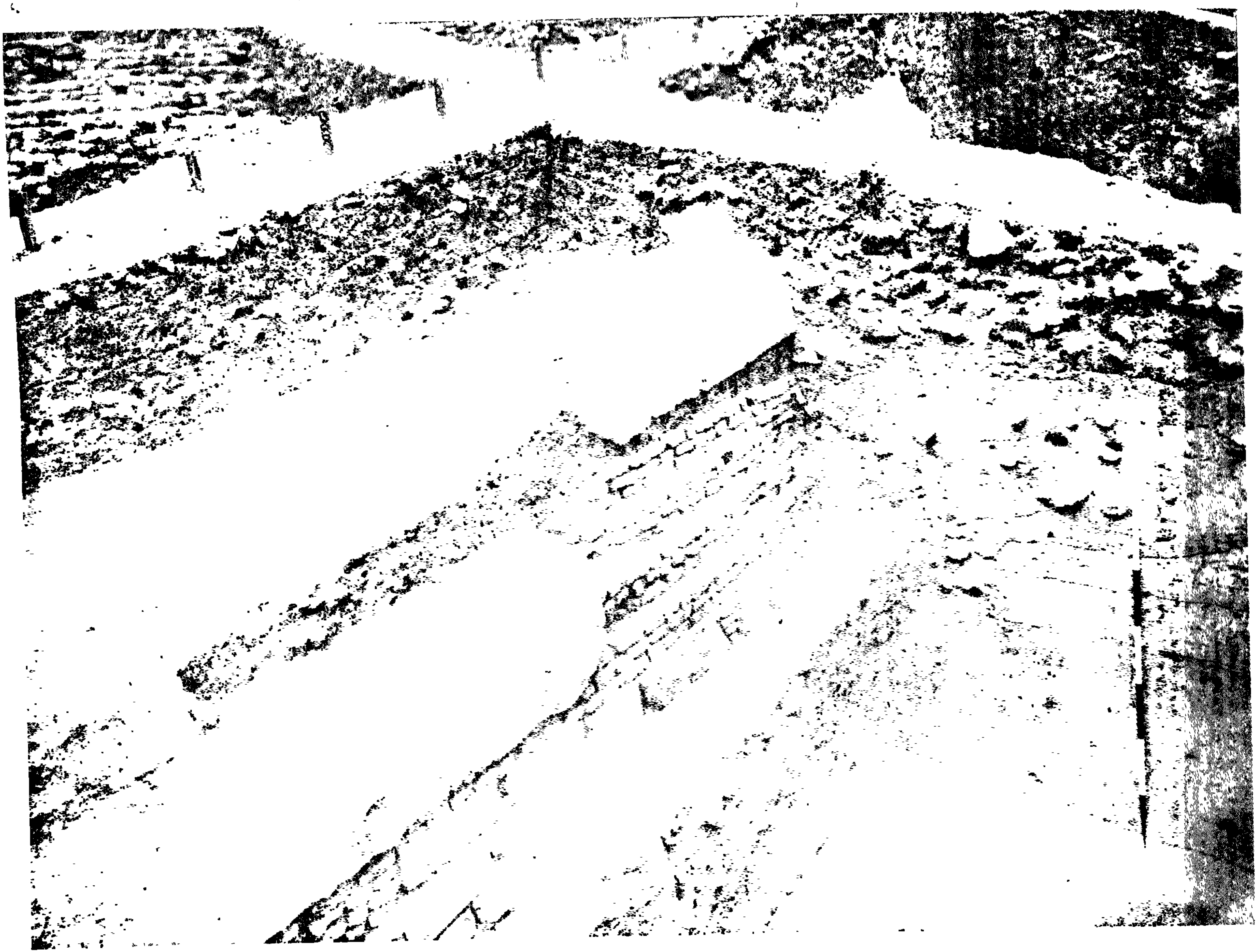


PLATE VIII—General view of Kuṣāṇa palace on the Yamuna



PLATE IX—General View of the Central Block on the Yamuna

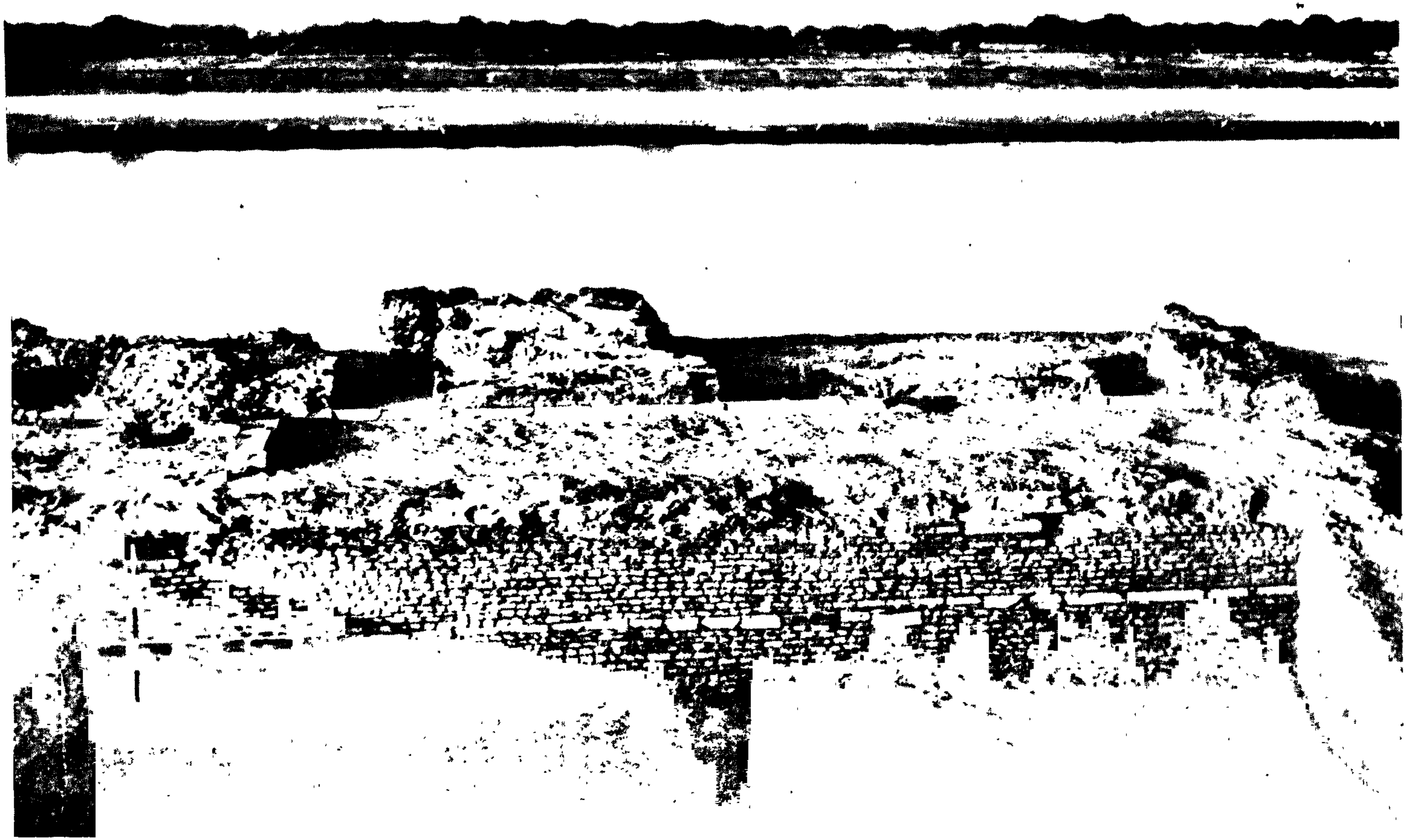


PLATE X—General View of the Basement in the Central Block on the Yamuna



PLATE XI—General view of the room in Eastern Block with collapsed vault

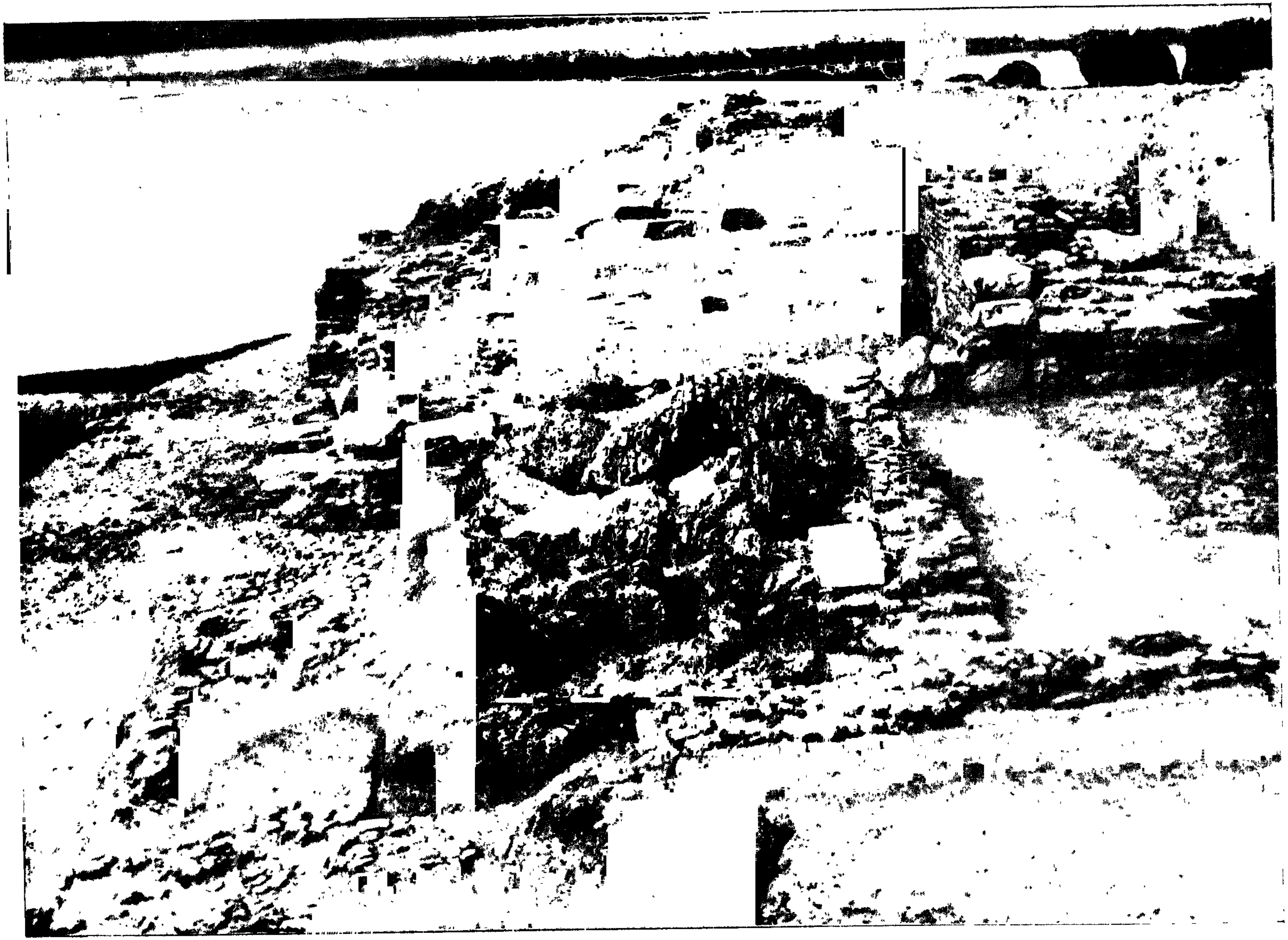


Plate XII—Three Arches in a Row in the Western Block





Plate XIII-A.—Four Centred Pointed Arch



Plate XIII-B.—Segmental Arch



PLATE XIV—Ghost Arch

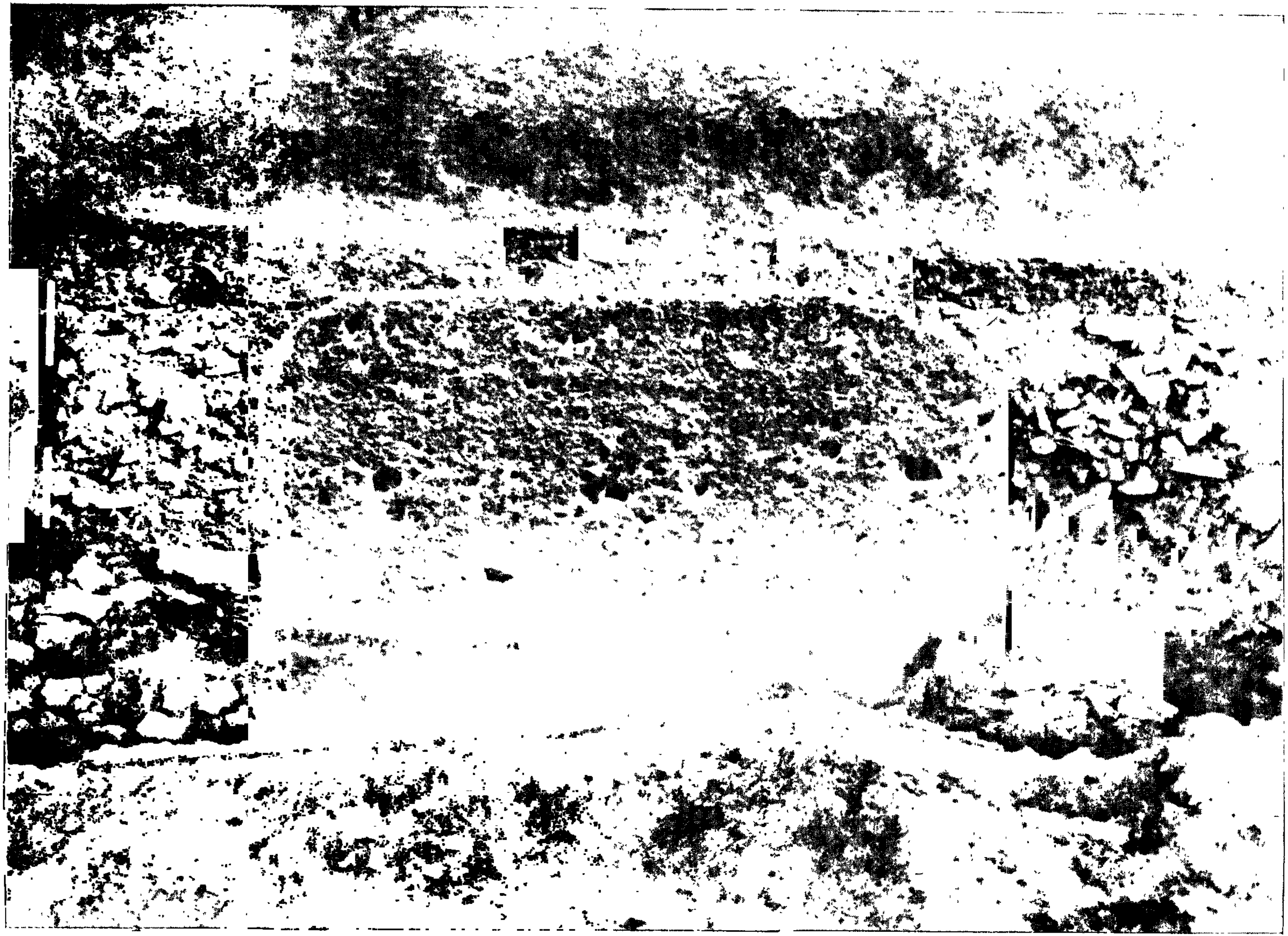


PLATE XV - Collapsed vault in Eastern gallery



Plate XVI—Fragments of Dome showing Haunches



Plate XVII—Fragments of dome-bricks showing offsets



PLATE XVIII—Fragments of dome—evidence of vertical and horizontal shuttering



PLATE XIX—A. Inscription of Buddhamitrā with the Name of Kaniṣka



B. Inscription of Buddhamitrā without the Name of Kaniṣka



PLATE XX A—Sealing of Kaniṣka



PLATE XX B—Clay Bulla



PLATE XXII—The Āyagapaṭṭa mentioning Ghoṣitārāma Monastery



PLATE XXIII–A. Inscription of Naka, son of Hasthika

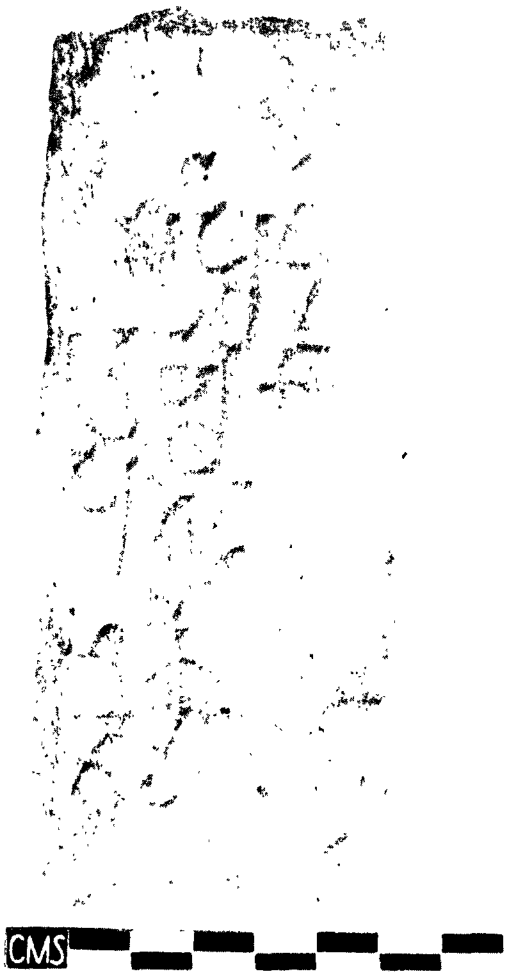


PLATE XXIII–B. Inscription of Naka, son of Hasthika



PLATE XXIV—Śaka Parthian-Kuṣaṇa terracotta figurines



PLATE XXV—Śaka-Parthian-kuṣāṇa terracotta figurines



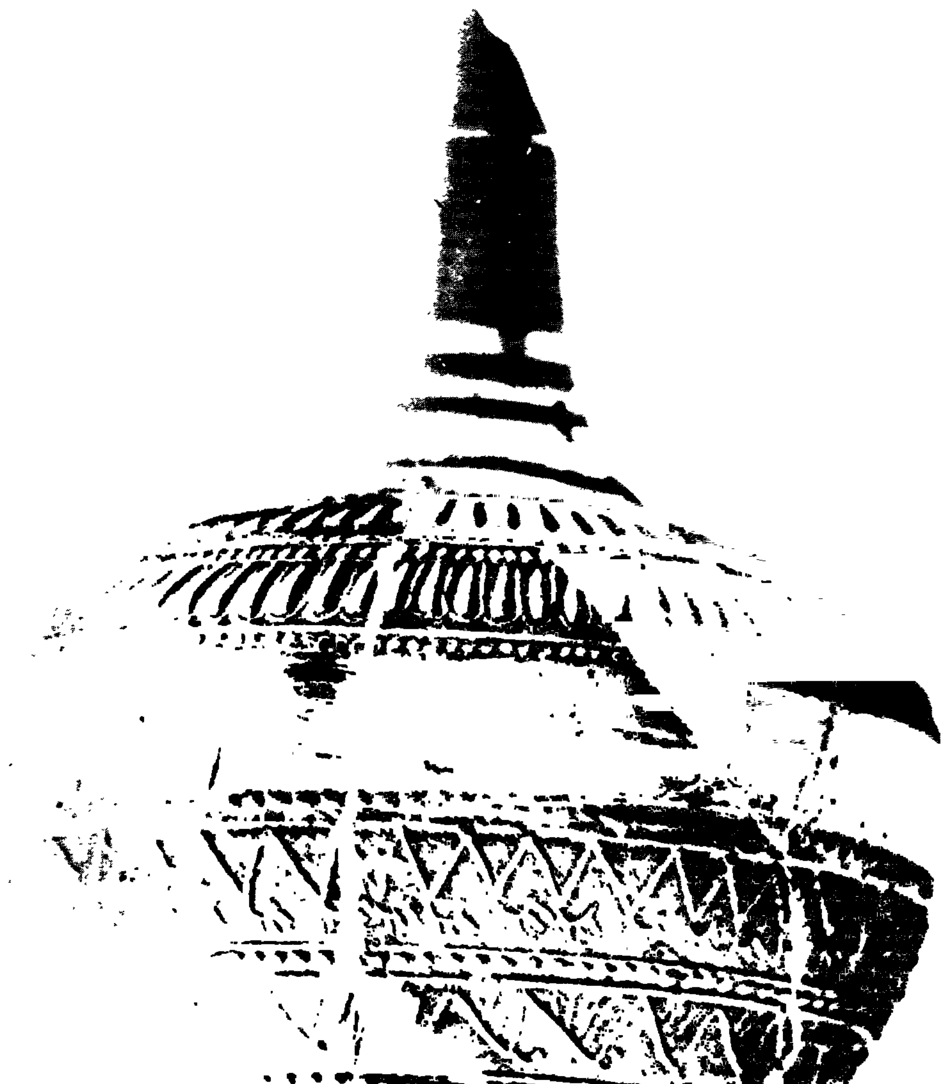
Plate XXI—A. Inscription of Sakanasaka.



B. Inscription of Layaka



PLATE XXVI—Stamped Surahi




CMS

PLATE XXII—The Āyagapaṭṭa mentioning Ghoṣitārāma Monastery



Plate XXIII—A. Inscription of Naka, son of Hasthika

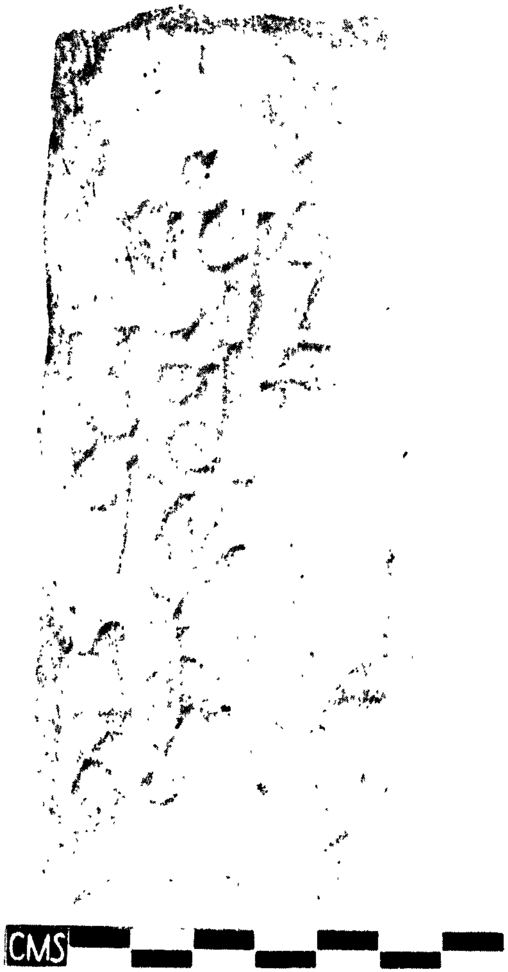
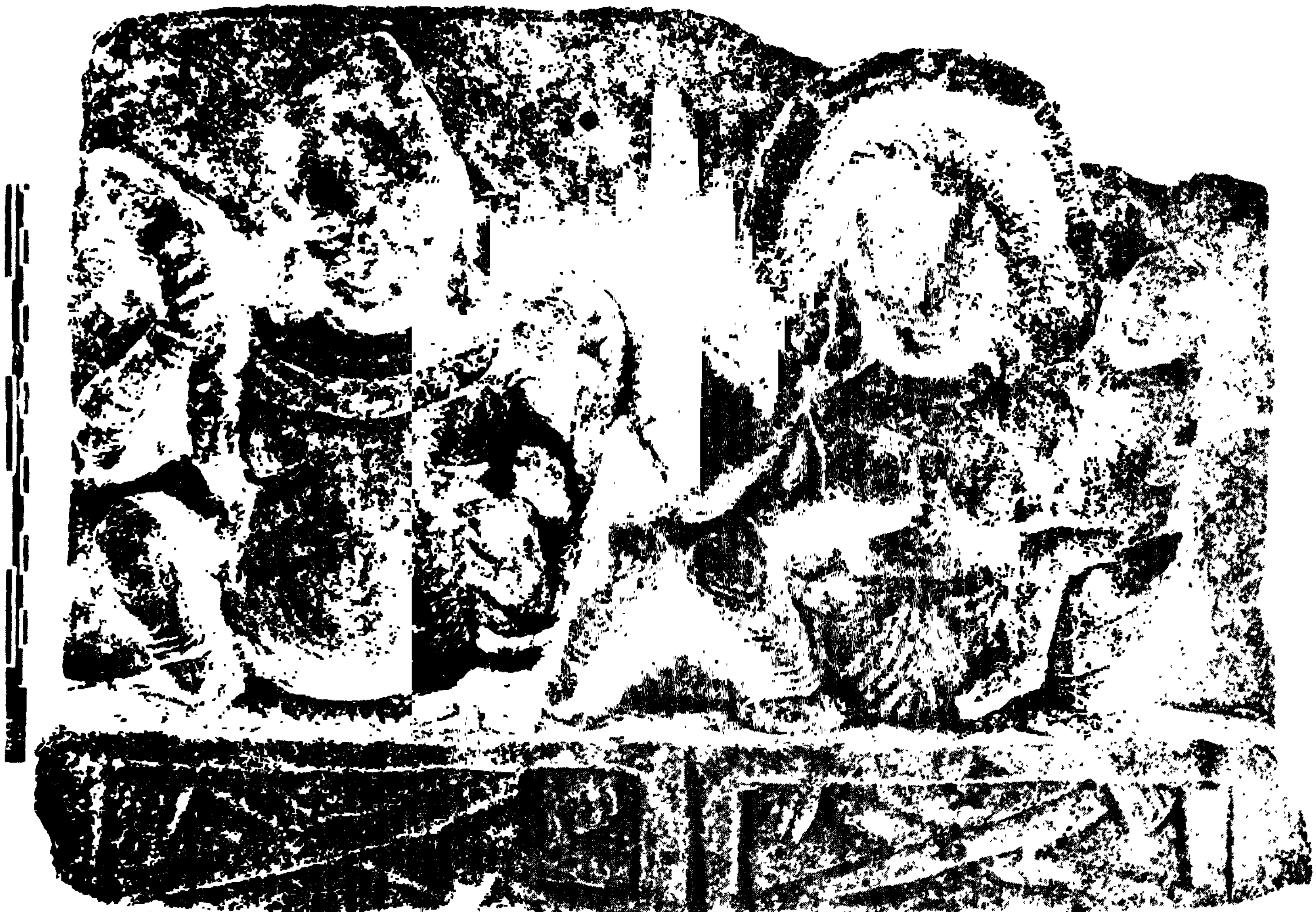


Plate XXIII—B. Inscription of Naka, son of Hasthika



PLATE XXVIII—Kubera Pañchika



KAUSAMBI 1960-62: PLAN OF THE PALACE AREA

CIRCA 800 B.C.–200 A.D.

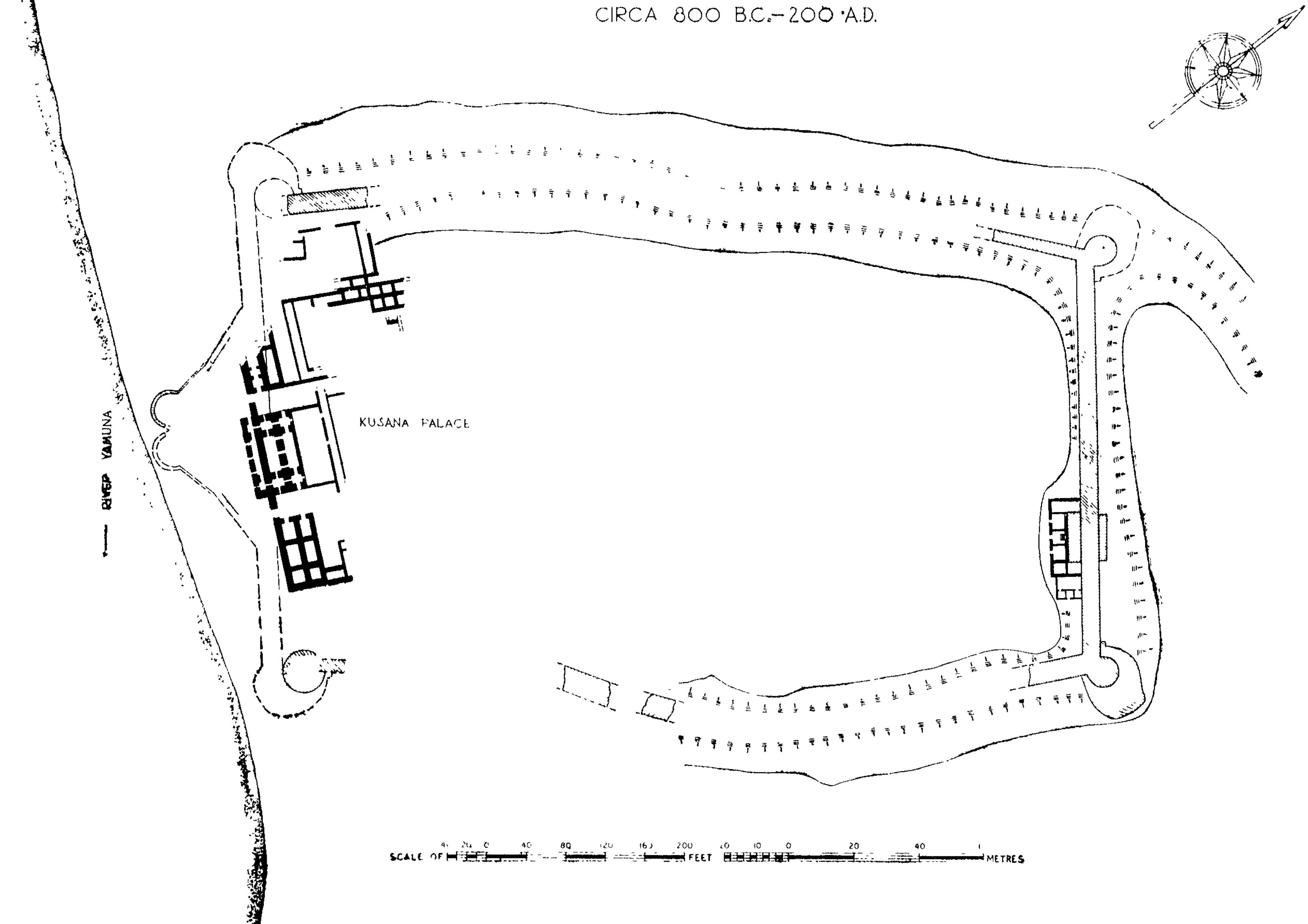
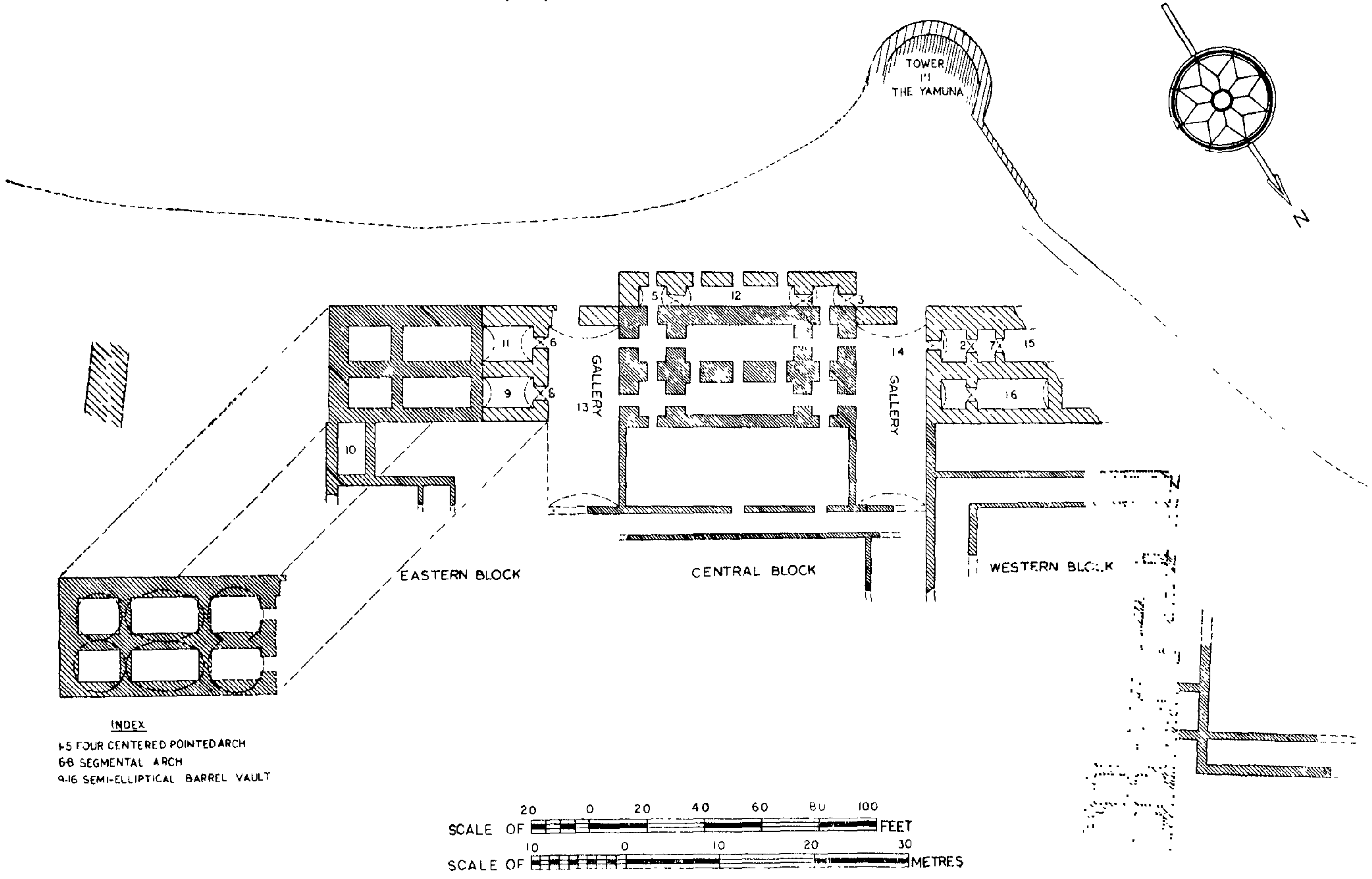


FIG. 2

KAUŚĀMBĪ

KUṢAṆA PALACE ON THE YAMUNĀ



L K TIWARI

FIG. 3

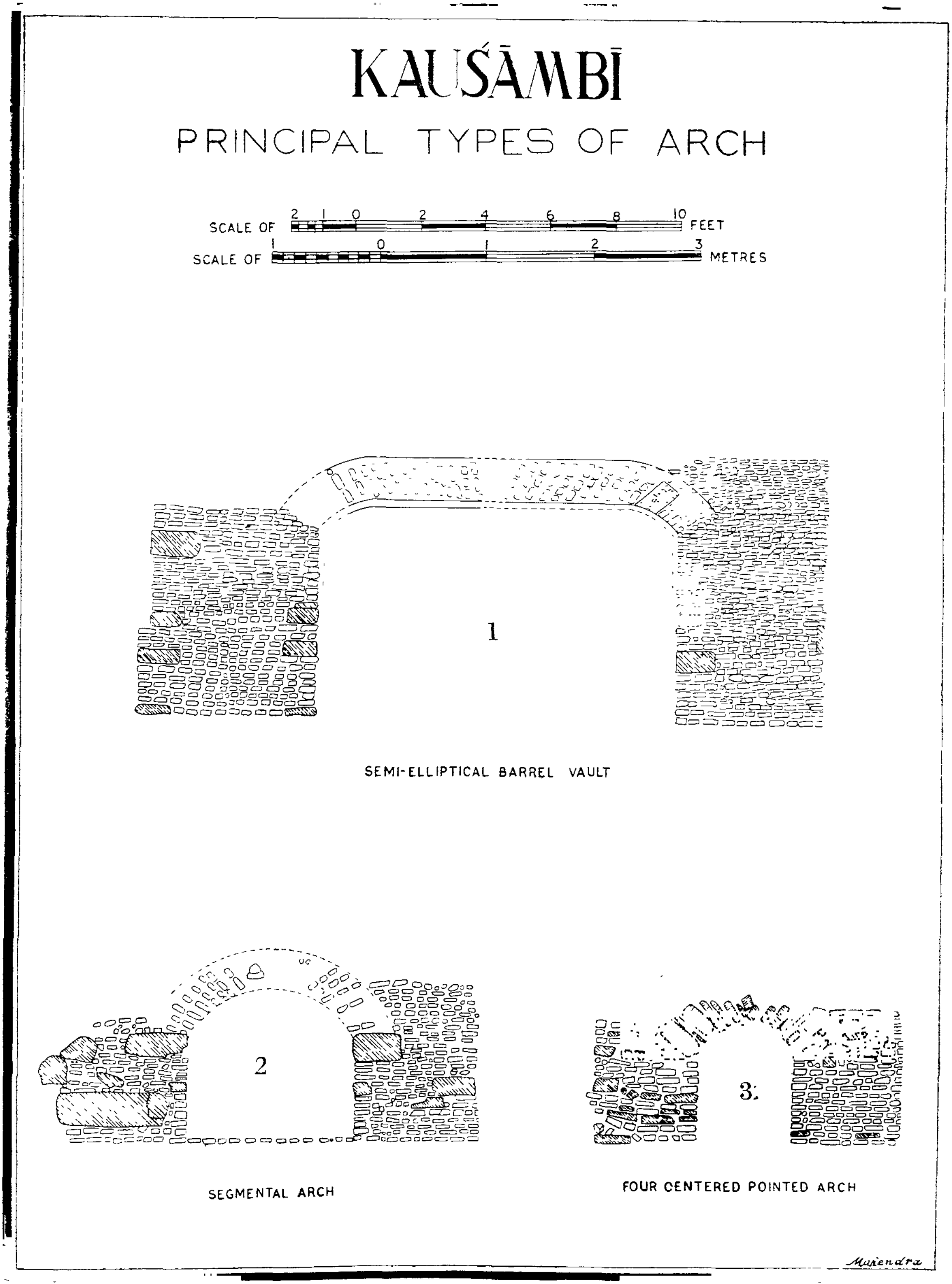
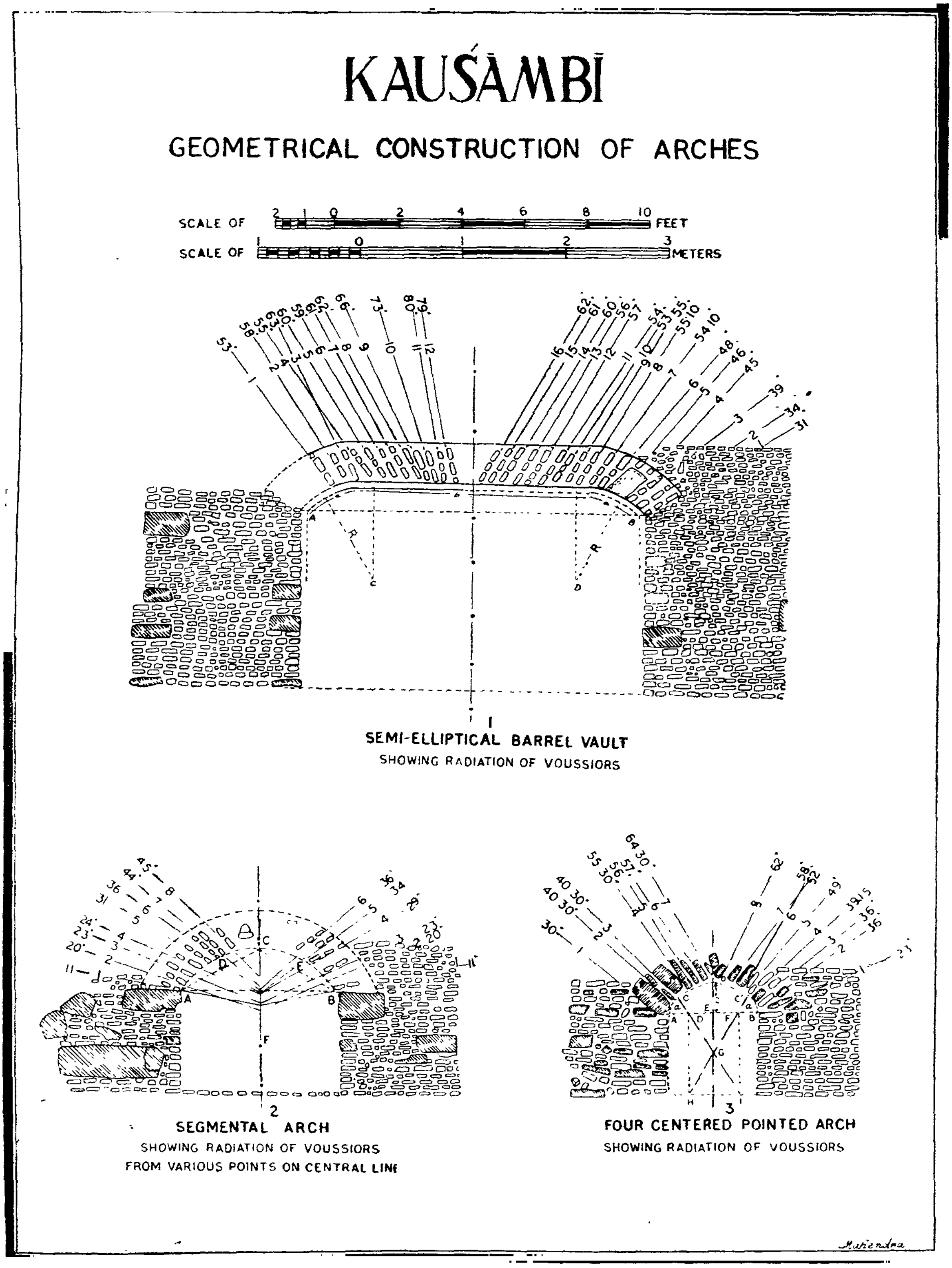

KAUŚĀMBĪ
PRINCIPAL TYPES OF ARCH
SCALE OF 2 1 0 2 4 6 8 10 FEET
SCALE OF 1 0 1 2 3 METRES
1
SEMI-ELLIPTICAL BARREL VAULT
2
SEGMENTAL ARCH
3
FOUR CENTERED POINTED ARCH
Mahendra

FIG. 4



KAUŚĀMBĪ
GEOMETRICAL CONSTRUCTION OF ARCHES
SCALE OF FEET
SCALE OF METERS
1
SEMI-ELLIPTICAL BARREL VAULT
SHOWING RADIATION OF VOUSSIORS
2
SEGMENTAL ARCH
SHOWING RADIATION OF VOUSSIORS
FROM VARIOUS POINTS ON CENTRAL LINE
3
FOUR CENTERED POINTED ARCH
SHOWING RADIATION OF VOUSSIORS

FIG. 5

ARCHES FROM AFGHANISTAN AND U.S.S.R.

Ist.- 3rd. Cent. A.D.

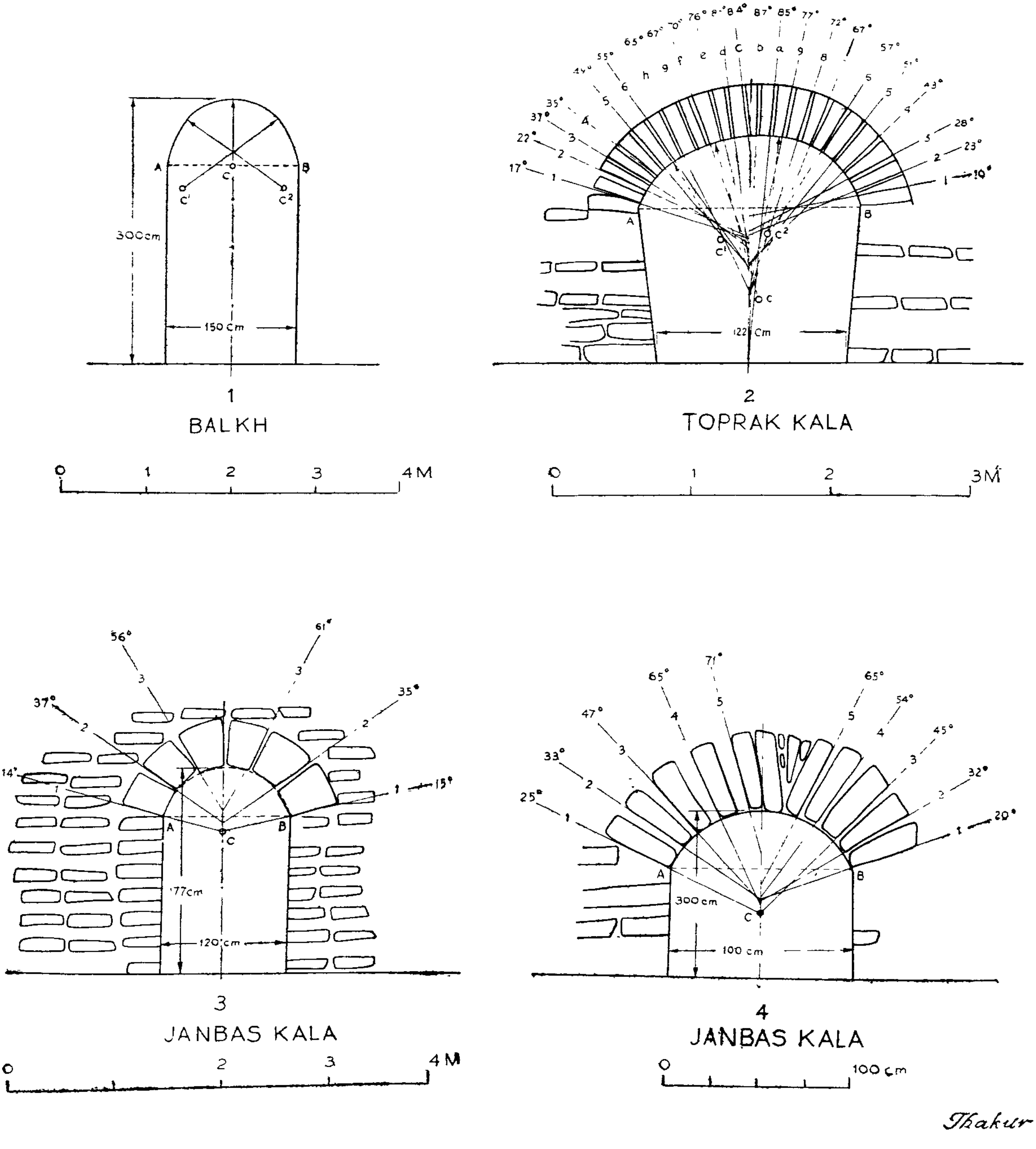
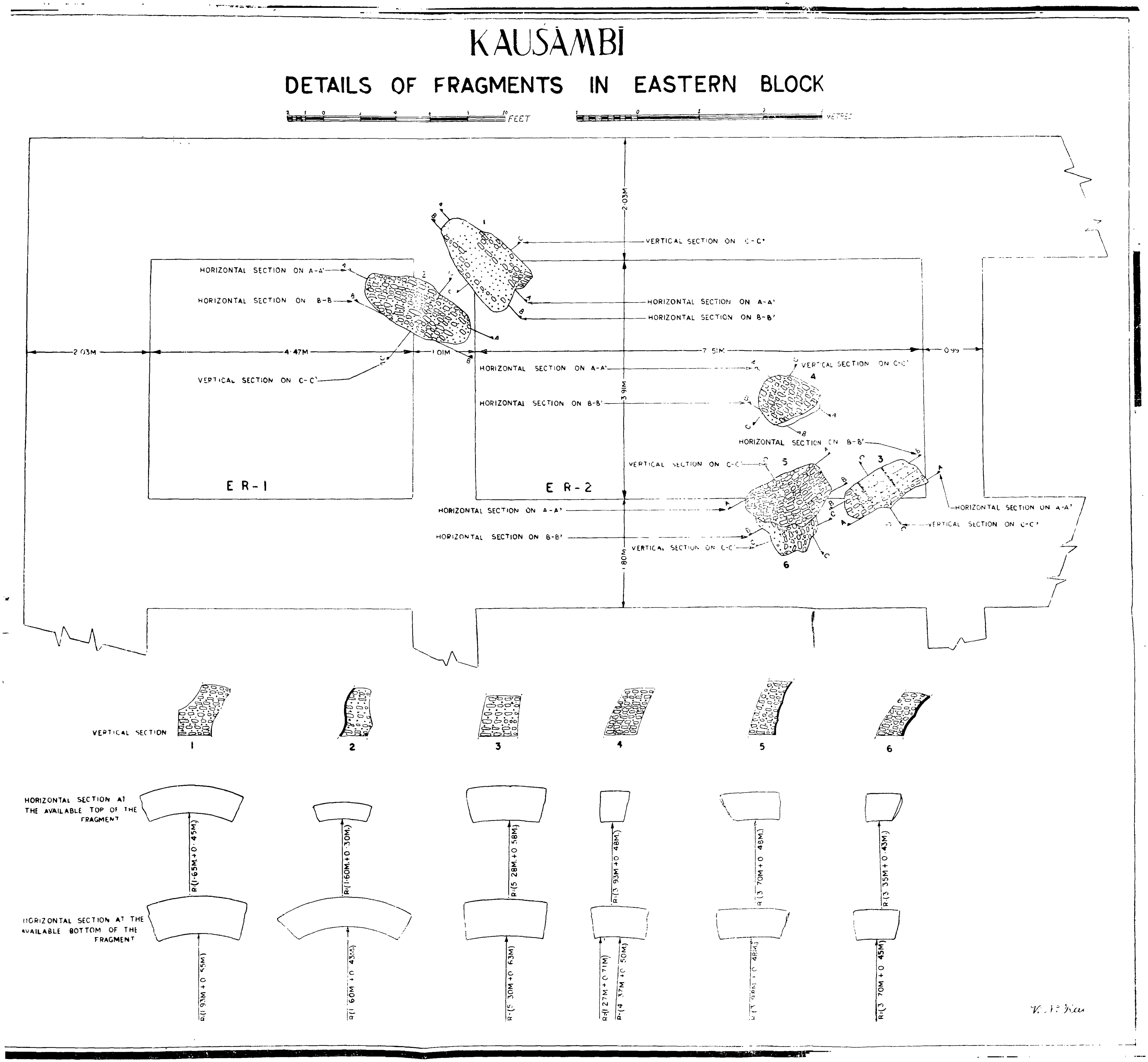
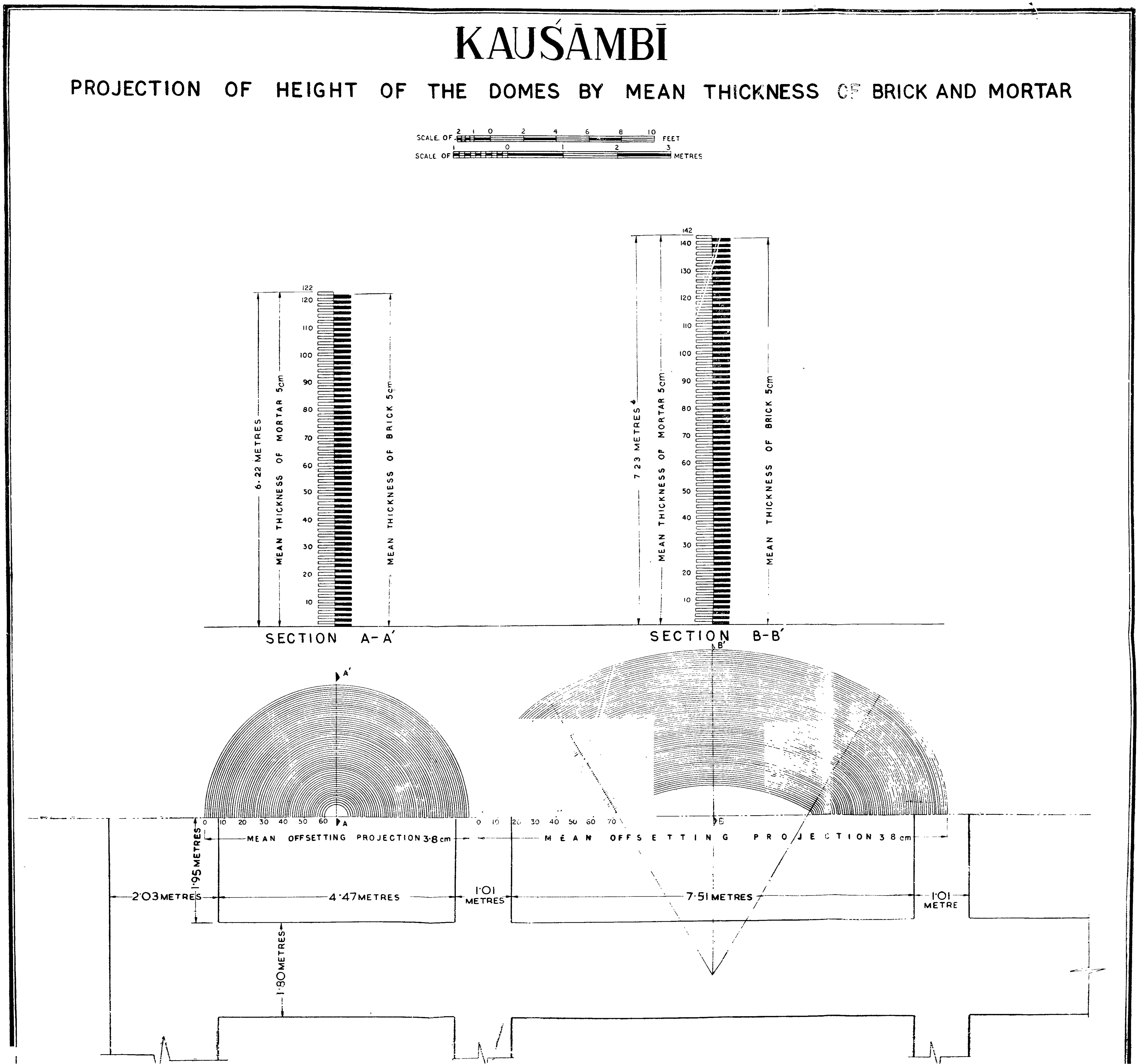


Fig. 6



KAUŚĀMBĪ
DETAILS OF FRAGMENTS IN EASTERN BLOCK
FEET
METRES
HORIZONTAL SECTION ON A-A'
HORIZONTAL SECTION ON B-B'
VERTICAL SECTION ON C-C'
2·03M
4·47M
1·01M
7·51M
0·99
3·91M
1·80M
ER-1
ER-2
VERTICAL SECTION
1
2
3
4
5
6
HORIZONTAL SECTION AT THE AVAILABLE TOP OF THE FRAGMENT
HORIZONTAL SECTION AT THE AVAILABLE BOTTOM OF THE FRAGMENT
R=(1·65M+0·45M)
R=(1·60M+0·30M)
R=(5·28M+0·58M)
R=(3·93M+0·48M)
R=(3·70M+0·48M)
R=(3·35M+0·43M)
R=(1·93M+0·55M)
R=(1·60M+0·43M)
R=(5·30M+0·63M)
R=(1·27M+0·71M)
R=(4·37M+0·50M)
R=(3·70M+0·45M)

Fig. 7



KAUŚĀMBĪ
PROJECTION OF HEIGHT OF THE DOMES BY MEAN THICKNESS OF BRICK AND MORTAR
SCALE OF FEET
SCALE OF METRES
6·22 METRES
MEAN THICKNESS OF MORTAR 5cm
MEAN THICKNESS OF BRICK 5cm
SECTION A–A′
7·23 METRES
SECTION B–B′
MEAN OFFSETTING PROJECTION 3·8 cm
1·95 METRES
2·03 METRES
4·47 METRES
1·01 METRES
7·51 METRES
1·01 METRE
1·80 METRES

KAUŚĀMBĪ

RESTORATION OF DOMES (ŚIKHARAS) SECTION

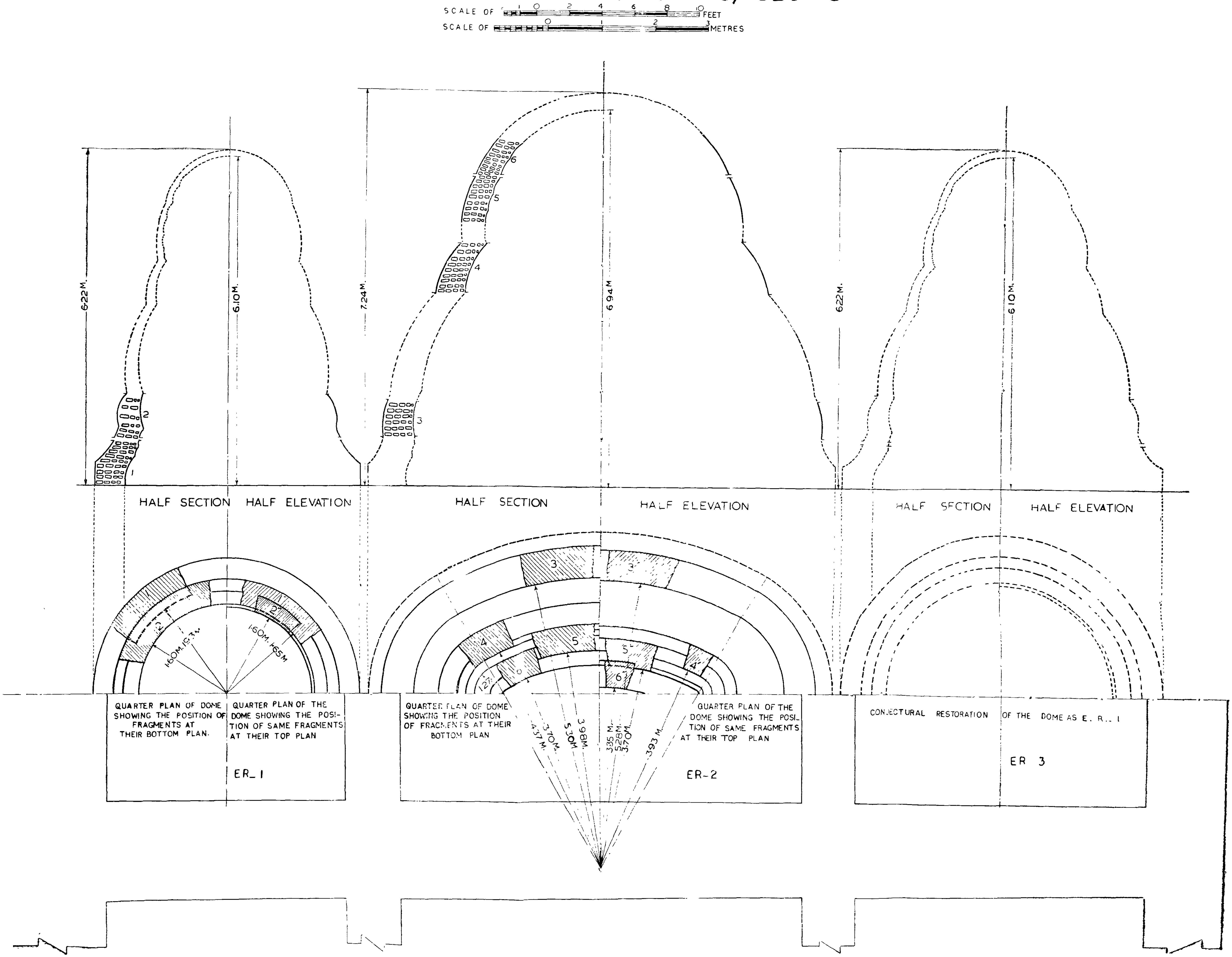
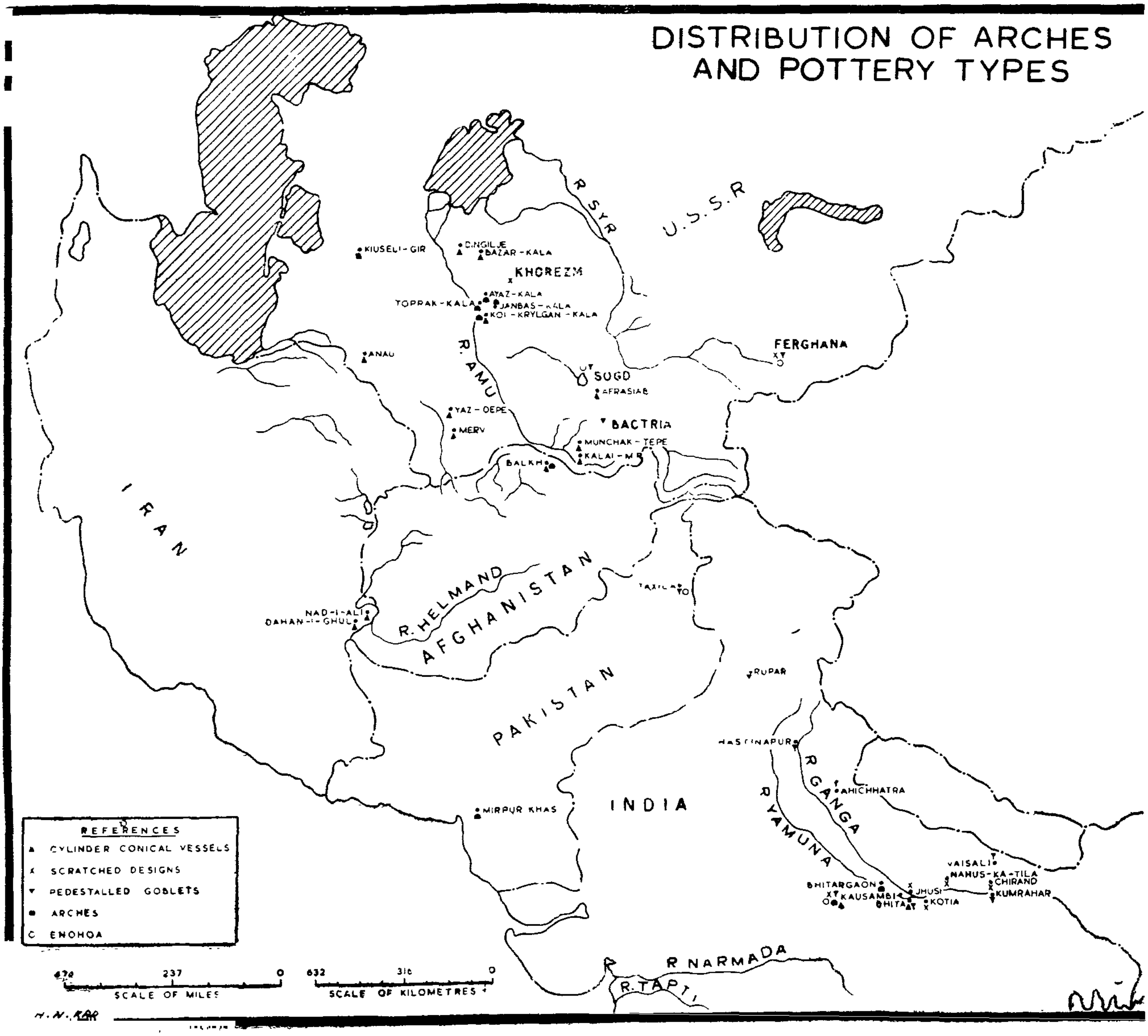
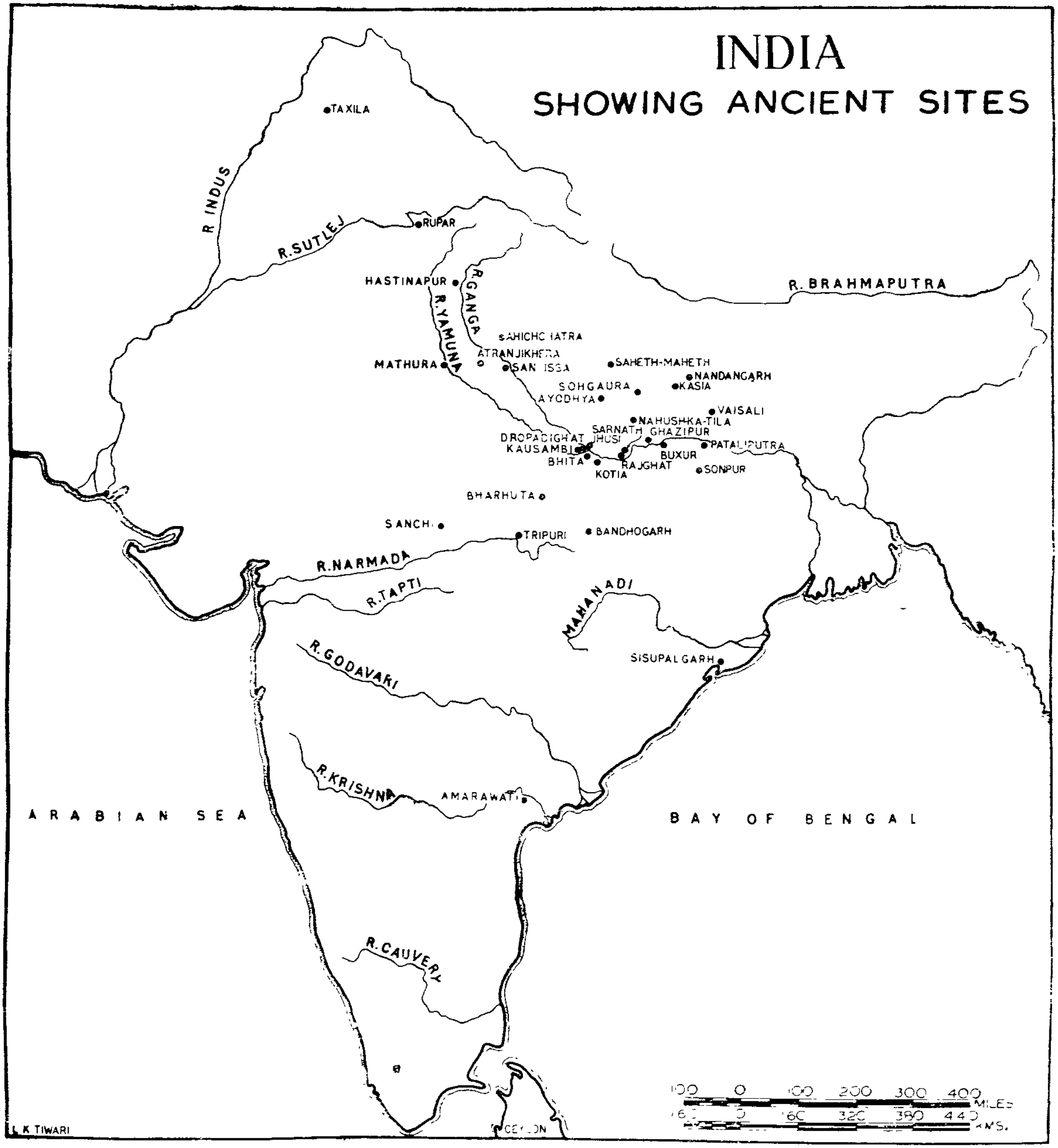


Fig. 9



DISTRIBUTION OF ARCHES AND POTTERY TYPES
U.S.S.R
R. SYR
KHOREZM
KIUSELI-GIR
BAZAR-KALA
AYAZ-KALA
TOPRAK-KALA
JANBAS-KALA
KOI-KRYLGAN-KALA
ANAU
R. AMU
SOGD
AFRASIAB
FERGHANA
YAZ-DEPE
MERV
BACTRIA
MUNCHAK-TEPE
BALKH
IRAN
R. HELMAND
AFGHANISTAN
NAD-I-ALI
TAXILA
PAKISTAN
RUPAR
HASTINAPUR
R GANGA
R YAMUNA
AHICHHATRA
MIRPUR KHAS
INDIA
VAISALI
NAHUS-KA-TILA
CHIRAND
BHITARGAON
JHUSI
KAUSAMBI
KUMRAHAR
BHITA
KOTIA
R NARMADA
R. TAPTI
REFERENCES
CYLINDER CONICAL VESSELS
SCRATCHED DESIGNS
PEDESTALLED GOBLETS
ARCHES
237
0
632
316
0
SCALE OF MILES
SCALE OF KILOMETRES

Fig. 10


INDIA
SHOWING ANCIENT SITES
TAXILA
R. INDUS
R. SUTLEJ
RUPAR
HASTINAPUR
R. GANGA
R. YAMUNA
R. BRAHMAPUTRA
MATHURA
ATRANJIKHERA
SAHETH-MAHETH
NANDANGARH
KASIA
SOHGAURA
AYODHYA
VAISALI
NAHUSHKA-TILA
SARNATH
GHAZIPUR
DROPADIGHAT
JHUSI
KAUSAMBI
PATALIPUTRA
BUXUR
BHITA
RAJGHAT
SONPUR
KOTIA
BHARHUTA
SANCHI
TRIPURI
BANDHOGARH
R. NARMADA
R. TAPTI
MAHANADI
SISUPAL GARH
R. GODAVARI
R. KRISHNA
AMARAWATI
ARABIAN SEA
BAY OF BENGAL
R. CAUVERY
CEYLON
L. K. TIWARI
MILES
KMS.